MAY 1, 1960
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TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

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V. 64 #9

TECHNOLOGY DEPARTMENT

Featuring

PREPARING FOR THE RATE CASE
By James L. Morrison

MARK SENSING OF TOLL TICKETS
By D. A. Perigo

A HANDY SET TO HAVE AROUND
By C. D. Ehinger

IDEAS FROM THE "LONE STAR STATE"
By Allan R. Stacey

"TELESCRIBER" AIDS PLANT DEPT.
By John S. Reed

ELECTRONIC COMMUNICATIONS
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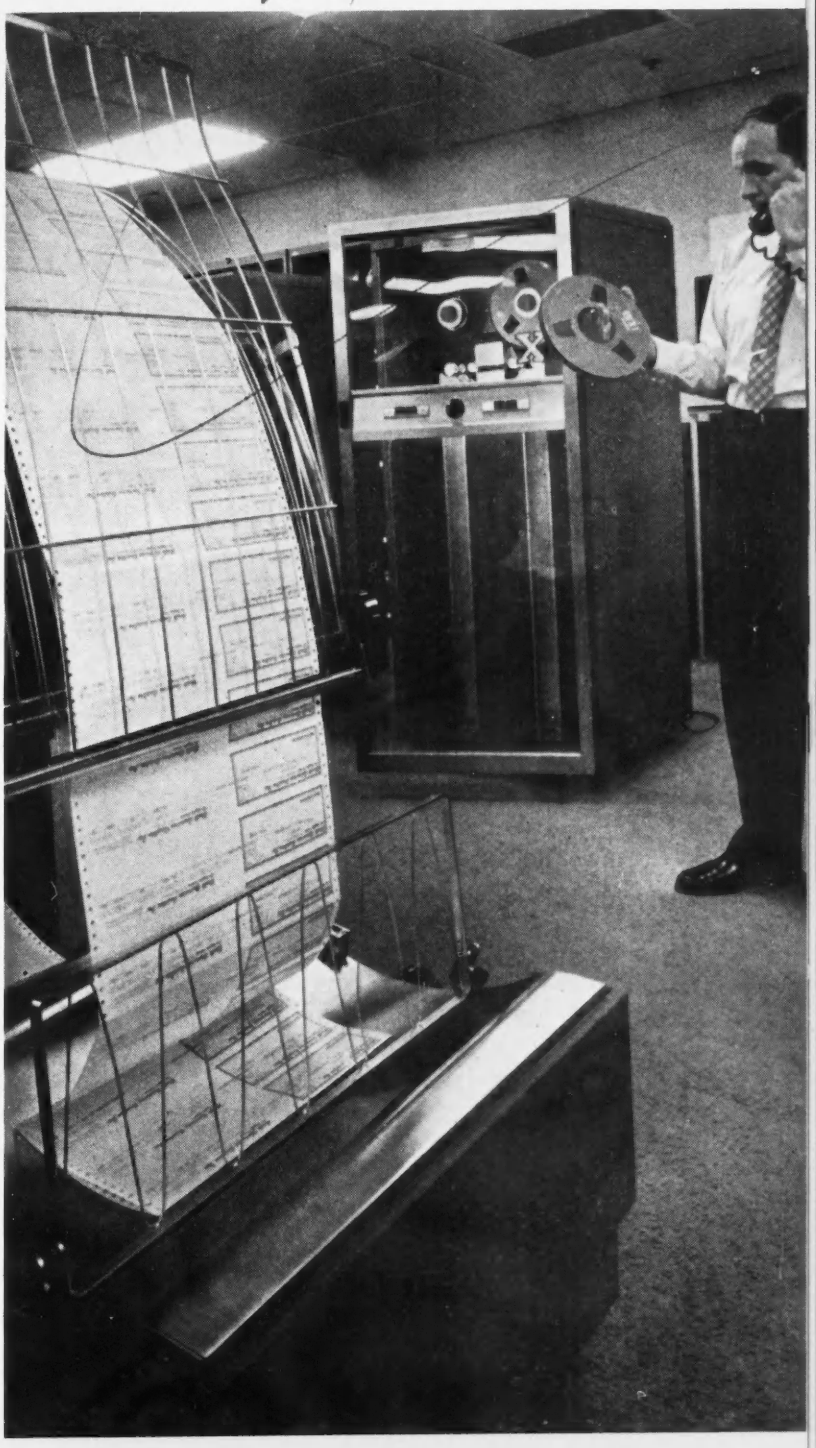


Let our "Revenue Men" show you THE NEW POTENTIALS OF DIRECTORY REVENUE

Take a man like

Bill Lyons...

Bill is one of our "Revenue Men" in Long Beach, California.

After graduating from prep school in 1932, Bill went to work for a prominent New England manufacturing company. By 1942 he had become a department head. Then he joined the Marines, where he served as a machine gunner in the South Pacific and was awarded the Purple Heart.

In 1945, Bill returned to the states and decided to further his education. He entered Long Beach City College as an advertising major, and was elected president of his freshman, sophomore and junior classes.

It was in 1949 that Bill joined the General Telephone Directory Company as a sales representative in our Long Beach Division. In 1955 he was promoted to Sales Supervisor.

Bill makes his home in Long Beach with his wife and three children. Over the years he has devoted his time and talents to the Community Chest and the Toastmasters Club.

Bill Lyons is a good example of the "Revenue Men" who work for General Telephone Directory Company—and for you. Men who are an asset to any community in which they live.

Are you keeping pace with the trend of increased directory revenue? The potential is enormous. You can't afford *not* to keep pace.

The revenue you earn from a well-sold, well-published directory can give you the highest net profit of any service you sell. Little or no expense is charged against it. And directory profits can make a hefty contribution to total net earnings.

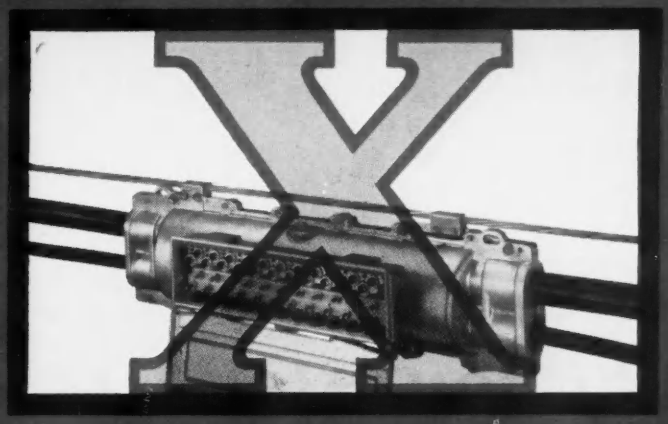
Our "Revenue Men" are trained to help you exploit the rich potential of directory revenue. Backed by our Complete Directory Service Plan, they work with market-tested procedures to tap every source of revenue: local, regional and national.

May we show you a plan tailored to fit your needs? No obligation, of course. Just call or write.

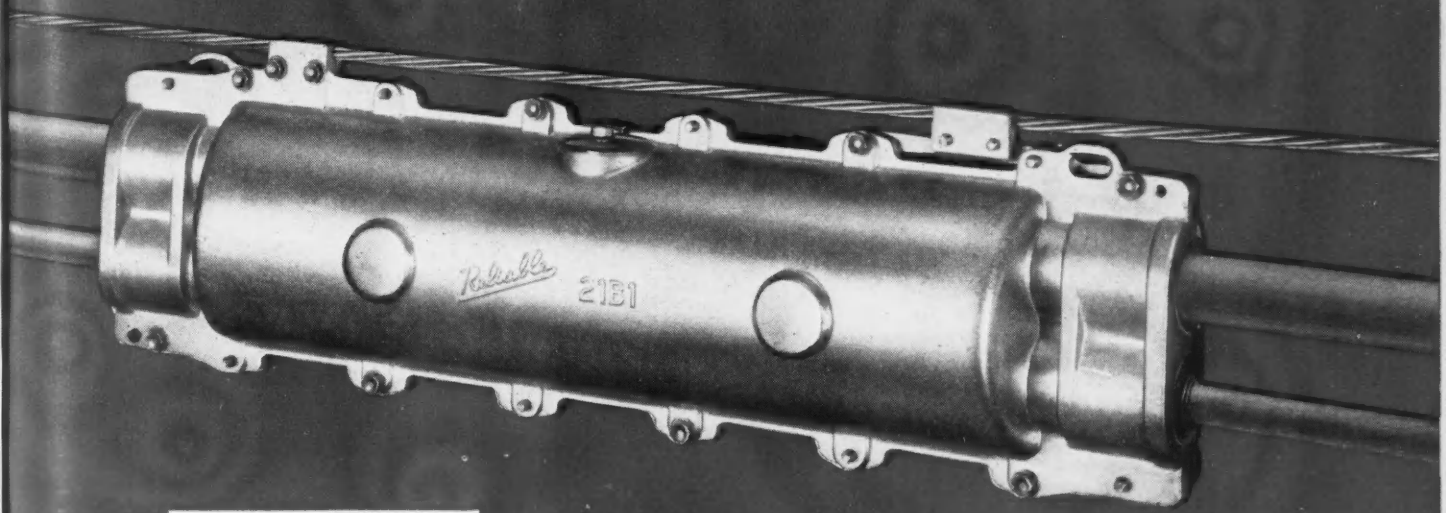
GENERAL TELEPHONE DIRECTORY COMPANY

1800 Oakton Boulevard
Des Plaines, Ill.
VAnderbilt 4-2164

DIVISION OFFICES: Bloomington, Ill. Columbia, Mo. • Durham, N.C. • Erie, Pa. • Fort Wayne, Ind. Honolulu, H. I. • Lexington, Ky. • Long Beach, Calif. • Madison, Wis. Manila, P. I. • San Angelo, Tex. • San Francisco, Calif. • Spokane, Wash.



Now...
"X" branch splice cases



No. 17 ratchet wrench

Designed specifically for splice cases and splice case terminals. Handle length (3¾") limits the torque that can be applied to clamping bolts. Strongly recommended for use on all splice case installations.

Branch outlets on both ends

Type "X" splice cases and terminals are here, making a total of forty-two different catalog numbers in the line of Reliable splice cases and splice case terminals. Now you can straight splice, "Y" splice and "X" splice. The new type offers all the advantages of the standard models plus branch outlets on both ends of the case.

Both Protected and Unprotected "X" type splice case terminals are available for 6, 11 and 16 pair—or, two units can be used together for 12, 17, 22, 27 and 32 pair terminals. Cable size — 1" to 1.6" O.D., with Adapter available for .3" to 1".

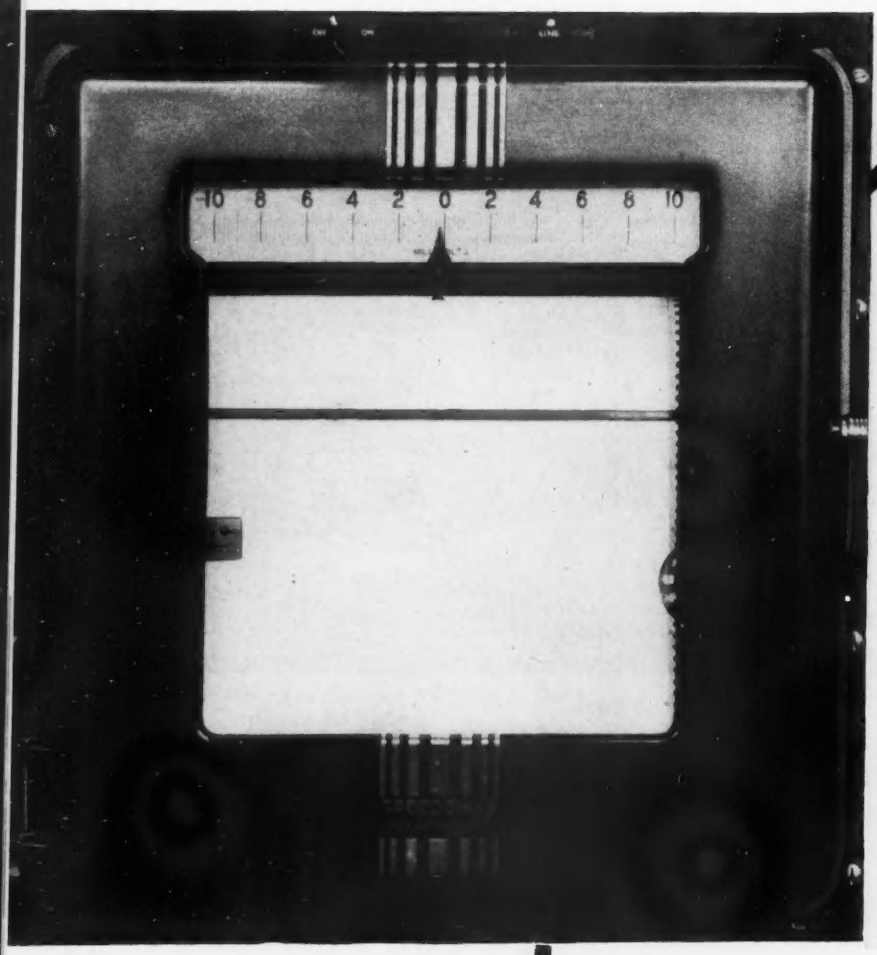
Installation Specification No. 104 describes installation procedures for splice cases and splice case terminals. Send for yours today.

Reliable ELECTRIC COMPANY

Franklin Park, Illinois

A Symbol of Integrity Since 1909

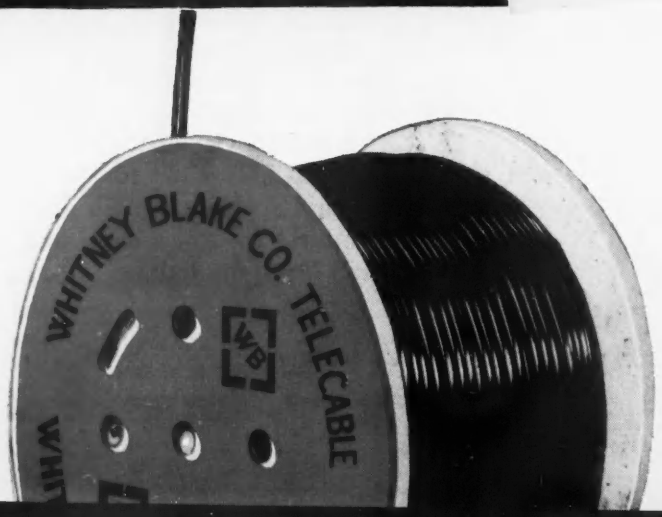
100% AUTOMATIC TELETESTER ASSURES *that all conductors in every length of Whitney Blake Telecable® leave the factory free from . . .*



- OPENS
- GROUNDS
- CROSSES
- SHORT CIRCUITS

All data including the resistance of each conductor is permanently recorded on strip charts.

Only the TELETESTER provides this complete inspection.



'TESTING

WHITNEY BLAKE CO.

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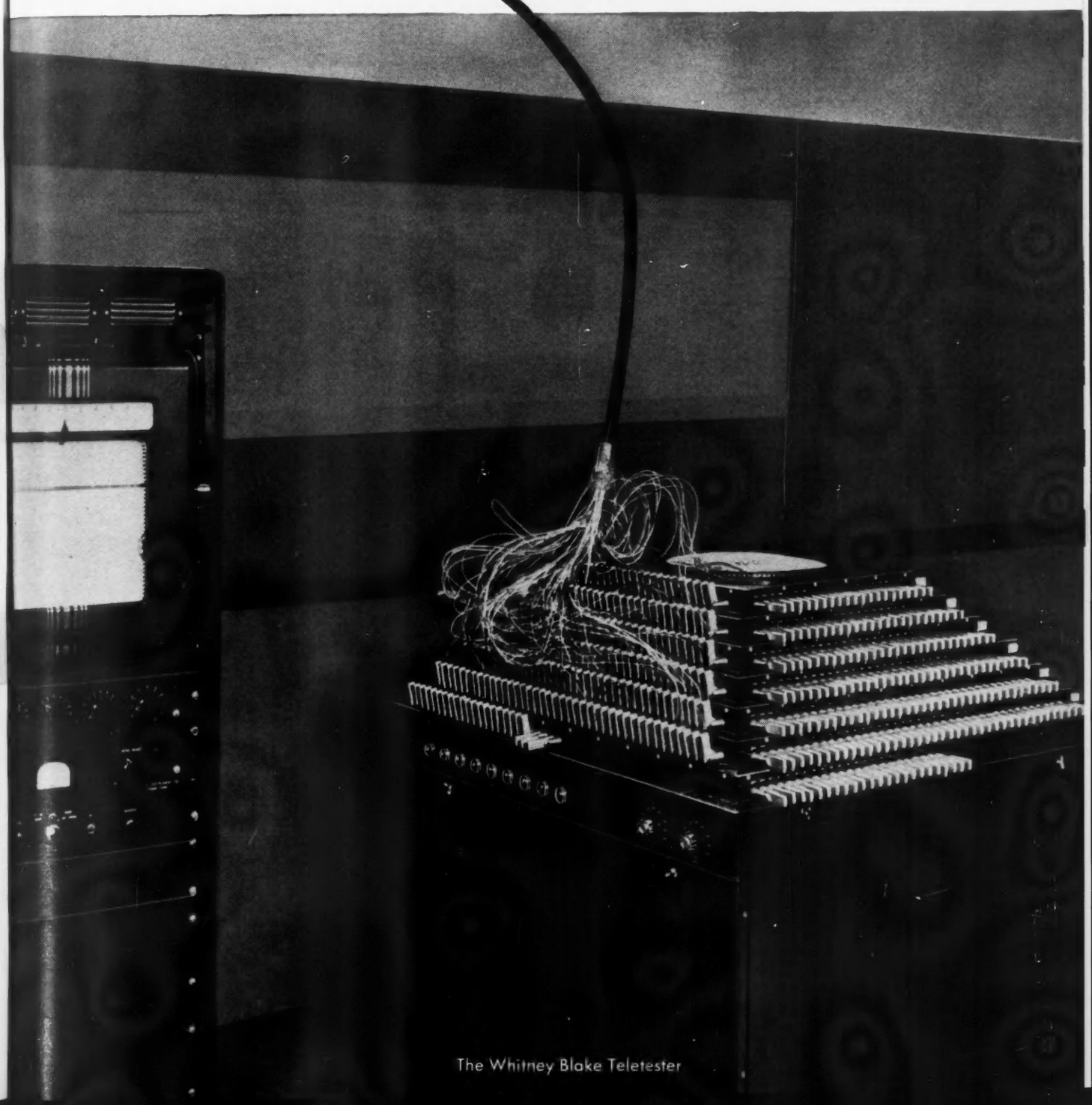
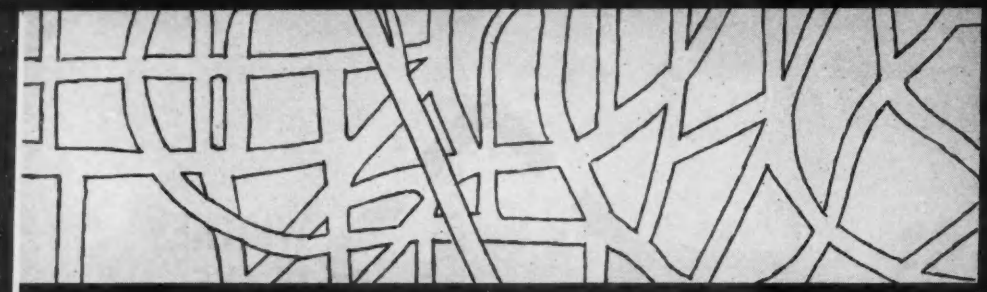
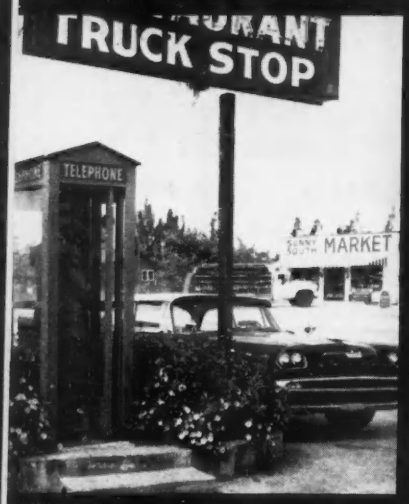
RELIABILITY — A PRODUCT OF THE ADVANCED TESTING TECHNIQUE AT WHITNEY BLAKE.



The Whitney Blake Teletester





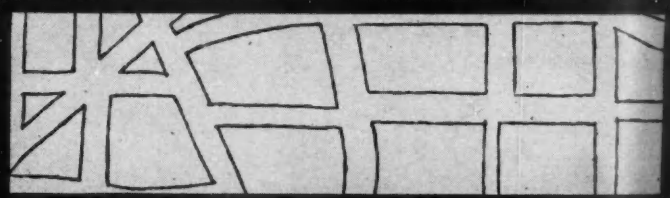
DRIVE-INS

PARKING LOTS

SHOPPING CENTERS

what are the best spots for pay

PUBLIC INSTITUTIONS



After you've found the best locations in your town, find out about installing AE paystations. They come in 10 sparkling colors. Reinforced, burglar-resistant housing discourages pilferage. Life-like transmission. Durable, moisture-proof coiled cord.

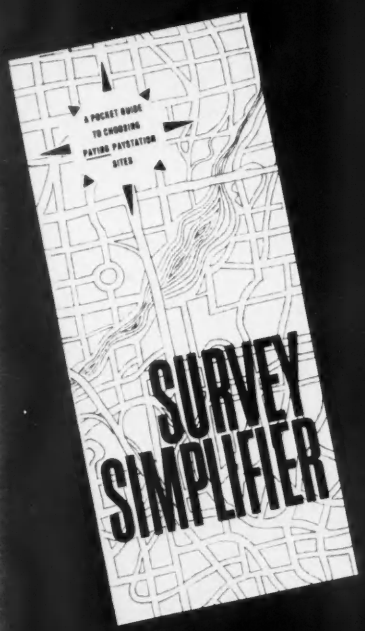
TRAVEL DEPOTS

RECREATION CENTERS

paystations in your area?

GAS STATIONS

use our handy SURVEY SIMPLIFIER to pick the best locations!



Are you making full use of paystations as revenue builders in your town? It's easy to find out. Write for a free copy of our handy Survey Simplifier. It helps you find the best spots for paystations in your community. Address Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

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TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

VOL. 64, NO. 9 MAY 1, 1960

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The TE&M Front Cover

The world's most powerful network of commercial computers able to "talk" to each other via microwaves and telephone wires was demonstrated publicly for the first time last month by Rocketdyne, a division of North American Aviation, Inc., Canoga Park, Calif. Tele-processing data system — developed in cooperation with the Pacific Telephone & Telegraph Co. — allows the six computers to "talk" to each other at the rate of 75,000 words per minute. Cover photo shows high-speed printer at North American's Los Angeles division using employe information received by microwave transmission to turn out pay checks at the rate of 400 per minute.

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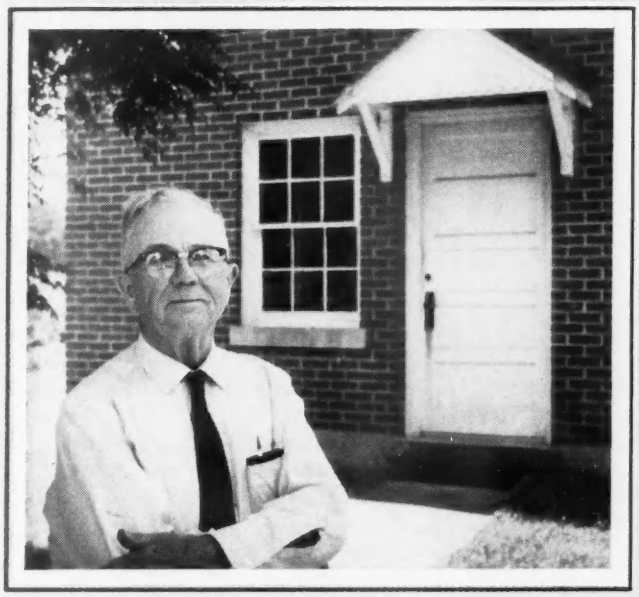
RAYTHEON

in the power field

NEWS ABOUT RAYTHEON TELEPHONE POWER SUPPLIES

Raytheon Company, Industrial Apparatus Division, Manchester, New Hampshire

RAYTHEON RECTICHARGER STILL IN SERVICE AT PEOPLE'S MUTUAL (VA.) AFTER 20 YEARS



Mr. E. B. FITZGERALD, president of People's Mutual Telephone Company with headquarters at Gretna, Virginia. The company founded by Mr. Fitzgerald's father 80 years ago serves over 1,600 subscribers in Gretna, Hurt and Renan, Va. Raytheon battery chargers are used in each of the three central offices.

Unit installed in December, 1939 when 80-year-old-company switched to dial

"Ours is a concern that grew from the most humble beginnings", explains E. B. Fitzgerald, president of People's Mutual Telephone Company, now headquartered at Gretna, Virginia.

Mr. Fitzgerald goes on to explain that his father established a primitive communications system between his home and office some 80 years ago--the first installation using a large box-like diaphragm which acted as both mouthpiece and receiver.

When the company converted from magneto to dial in December, 1939, a Raytheon Recticharger was installed. Since that time, Mr. Fitzgerald reports, "despite the fact that our subscriber list has grown over fourteen times, the 3-ampere, 50-volt battery charger has performed its task with top efficiency, without failure or maintenance problems". Each of the company's three central offices is now equipped with a Recticharger.

E. B. FITZGERALD and E. B. JR. compare modern dial telephone with early telephone instrument used by the elder's father 80 years ago. The senior Fitzgerald demonstrates an early method of "ringing" by striking the diaphragm with a rubber hammer to attract the distant party. The twenty-year-old Raytheon Recticharger is on the wall between them; batteries are at bottom left.

To learn about the Raytheon 1960-model telephone power supplies introduced at the U.S.I.T.A. convention, please write to Raytheon Company, Manchester, N. H., for the latest product data.

In the power field... Raytheon power supplies for: PBX · PABX · MANUAL · STEP-BY-STEP X-BAR · AUTOMATIC TOLL TICKETING · ELECTRONIC SWITCHING · CARRIER · MICROWAVE

Crapo HTL-135

EVERYTHING YOU NEED IN A GOOD RURAL TELEPHONE WIRE

Ample Conductivity
Superior Strength
Dependable Life
Low Cost

When you or your engineers specify a telephone wire for rural lines you want to be sure that it will fulfill every practical requirement yet be economical to install and maintain. Crapo HTL-135 High-Tensile Line Wire was conceived and developed with that purpose in mind. Its voice transmission and ringing qualities are excellent for subscriber loops in typical rural systems. Its superior physical strength and its fatigue endurance make posible long-span, low-cost construction with an adequate margin of safety and a minimum of maintenance.

Comparative cost studies show that substantial savings can be realized by building rural lines with Crapo HTL-135. For dependable and economical performance, insist upon this reliable, time-proven conductor!

WRITE for Engineering Manual TM-59 containing Sag and Tension Data, Staking Tables and Guying Tables.

Crapo HTL-135
INDIANA STEEL & WIRE CO., INC. MUNCIE, INDIANA U.S.A.

INDIANA STEEL & WIRE CO., INC.
Muncie, Indiana

coming

CONVENTIONS

INDIANA Tel. Assoc., Claypool Hotel, Indianapolis, Indiana, May 4-5.

WISCONSIN Tel. Assoc., Plankinton House, Milwaukee, Wisc., May 10-11.

ILLINOIS Tel. Assoc., Abraham Lincoln Hotel, Springfield, Ill., May 19-20.

KANSAS-MISSOURI, Tel. Associations, Town House, Kansas City, Kans., May 23-24.

PENNSYLVANIA Tel. Assoc. Bedford Springs Hotel, Bedford Springs, Pa., June 6-8.

CALIFORNIA Tel. Assoc., Fairmont Hotel, San Francisco, Calif., June 8-10.

WASHINGTON-OREGON Tel. Associations, Sheraton Portland Hotel, Portland, Ore., June 16-17.

NEW YORK Tel. Assoc., Scaroon Manor, Schroon Lake, N. Y., June 20-22.

TENNESSEE Tel. Assoc., Hermitage Hotel, Nashville, Tenn., Sept. 7-8.

ARKANSAS Tel. Assoc., Hermitage Hotel, Hot Springs, Ark., Sept. 12-13.

MICHIGAN Tel. Assoc., Grand Hotel, Mackinac Island, Mich., Sept. 12-13.

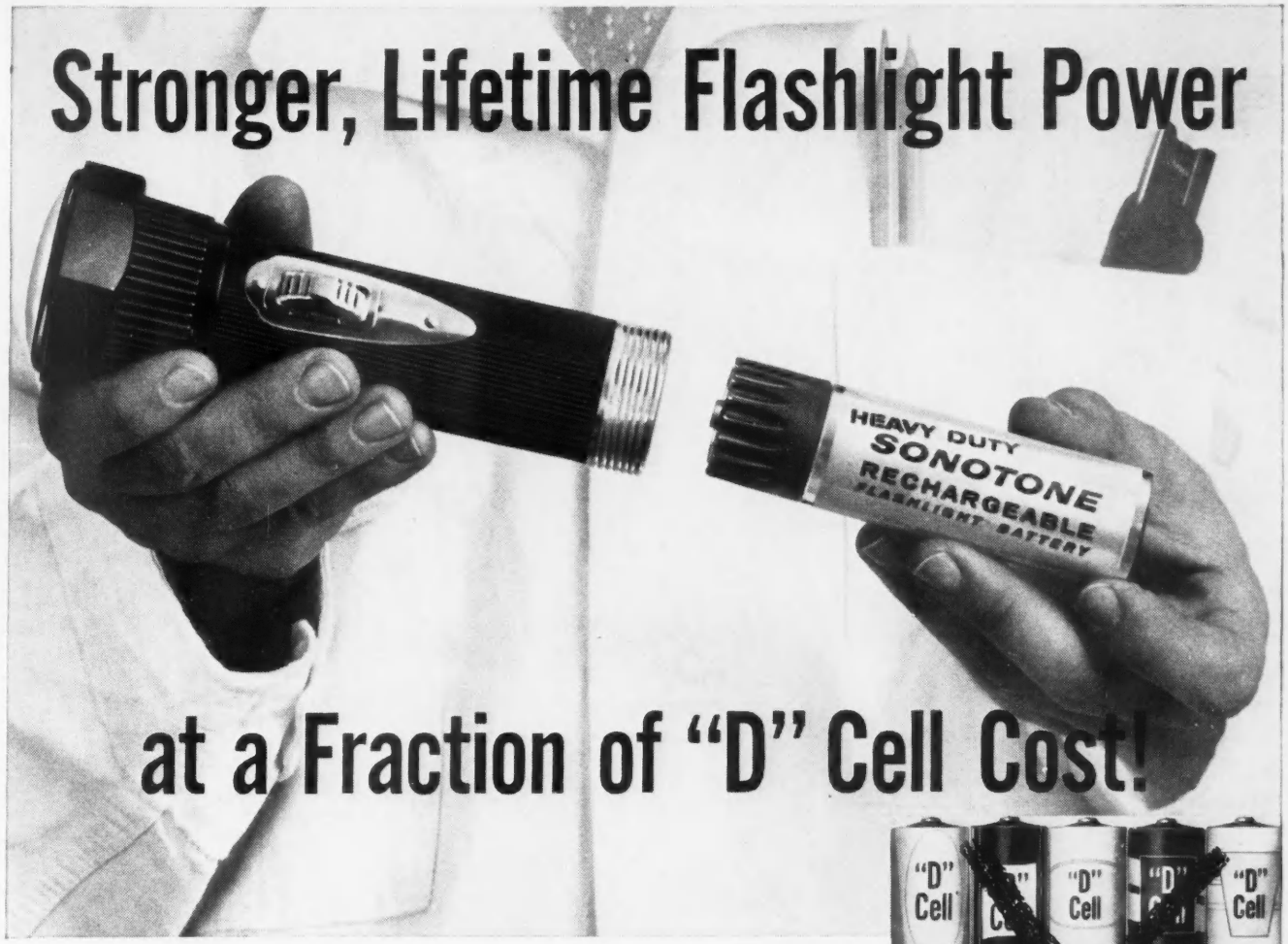
ROCKY MT. Tel. Assoc., Hilton Hotel, Denver, Colo., Sept. 14-16.

NEVADA Tel. Assoc., Hotel Nevada, Ely, Nevada, Sept. 21, 22, 23.

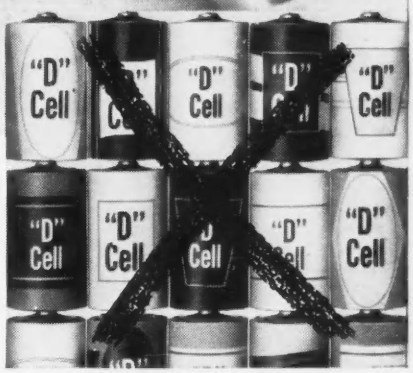
NEW ENGLAND Tel. Assoc., Mt. Washington Hotel, Bretton Woods, N. H., Sept. 25-28.

NATIONAL CONVENTION, Conrad Hilton Hotel, Chicago, Ill., Oct. 9-12.

Stronger, Lifetime Flashlight Power



at a Fraction of "D" Cell Cost!



Heavy-Duty Sonotone Rechargeable Flashlight Battery Cartridge

To recharge, just unscrew cap...

and plug overnight into any 110-120-volt AC outlet.

- **A multi-use adaptation of the patented Sonotone sintered-plate, nickel-cadmium battery used in space missiles and jets.**
- **Gives at least 3 hours of strong, continuous light from a single charge with PR-6 bulb—or 1½ hours with full-powered PR-2 bulb.**
- **Dependable in extreme temperature and weather conditions.**
- **Can be recharged hundreds of times at about ¼¢ per charge.**
- **Sturdy, leakproof construction—aluminum jacket—electrically shockproof.**
- **Full-year guarantee under heavy industrial use—backed by Sonotone's leadership of over 30 years in precision engineering and service.**

A completely new concept in flashlight battery efficiency and economy for industrial users! Replaces and outmodes any two "D" cells, for any purpose, in end-to-end use. Rechargeable overnight by plugging into any 110-120-volt AC outlet. Gives maintenance and service personnel a battery with a lifetime of use at a fraction of the cost of constantly replaced "D" cells. Dozens of applications – with railroads, aviation lines, municipal departments, public utilities and private industries. **Heavy-Duty Model FC-3** ($9.95 retail)—subject to your usual discounts. Also **Standard Model FC-2** for home use (light lasts at least 1½ hours with PR-6 bulb)—$7.95 retail. Write now for full details to:

Sonotone® CORP.
Battery Division, Dept. B51-50
ELMSFORD, N.Y.

Leading makers of fine transistor hearing aids, ceramic phonograph cartridges, speakers, microphones, electronic tubes, sintered-plate, nickel-cadmium batteries.

"But, Roy, you said

AE Supply Orders muse

Stethoscope on your supply order? To Tiny, this idea seems quite normal. After all, the boss repeatedly says that all AE supply orders must be carefully inspected! Poor Roy—if he has enough patience, he may be able to explain the difference between accurate order checking and a hospital examination.

AE doesn't compete with physicians. But, we do check your order carefully before it leaves our warehouse. Whether your supply order is for one item or a thousand, close attention to detail is always an important part of our service. You see, we expect to be in the telephone supply business for many years ahead. And the best way we can do this is to give you *prompt delivery* from a *large stock* of *famous brands*. Contact your AE warehouse. Let us prove again that—at AE you get all 3.

...be carefully inspected!"

at AE you get all 3

PROMPT DELIVERY
LARGE STOCKS
FAMOUS BRANDS

warehouses:

Northlake, Illinois Fillmore 5-7111	2915 Moore St. Richmond 21, Va. ELgin 8-9280	2360 N. W. Quimby St. Portland 10, Ore. CApital 3-7244	158 Corliss Avenue Johnson City, N. Y. SWarthmore 7-8507	2021 Main St. Kansas City 8, Mo HArrison 1-7575

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

INDUSTRY NEWSLETTER

By JAMES BOYD

GTE Holds Annual Meeting

THE ANNUAL Meeting of General Telephone & Electronics Corporation's shareowners was held April 20 at Fort Homer Hesterly Armory, Tampa, Fla.

Large number of shareowners living in and near Tampa attended meeting to discuss company's progress and outlook with executives, and to inspect Tampa property of General Telephone Co. of Florida. It has been practice of General Telephone & Electronics Corp. for several years to hold its annual meeting in different parts of country where large groups of its shareowners reside and where it has substantial manufacturing or telephone operations.

Directors elected for ensuing year were: Lawrence A. Appley; Thomas A. Boyd; Harold V. Bozell; Carl D. Brorein; Nelson J. Darling, Jr.; Robert A. Gantt; Theodore S. Gary; George E. Jones; Don G. Mitchell; Herbert L. Nichols; Donald C. Power; John B. Prizer; F. S. Spring; Russell B. Stearns; Gardiner Symonds; William J. Wardall, and Leslie H. Warner.

Shareowners approved proposals of management to change presently authorized 30 million shares of $10. par value common stock into 90 million shares having a $3.33-1/3 par value, thereby splitting present common stock outstanding three shares for one. New employe stock plan, whereby employes may purchase common shares of company stock, was approved. It is anticipated that maximum of two million shares of split common stock will be offered under employe stock plan. Purchase of these shares is to be made on an installment payment basis as determined by directors. Also approved by shareowners was authority for GTE to issue and sell up to $100 million principal amount of convertible debentures as needed for construction and expansion.

Following transaction of regular business, Donald C. Power, chairman of the board and chief executive officer, discussed the System's progress for 1959 and outlined some of the important objectives for 1960. Don G. Mitchell, president, was also introduced to the meeting.

At the organization meeting of the board of directors after the Annual Meeting a dividend of 19 cents per share (on the new shares) was declared, payable June 30, 1960, to shareowners of record May 31, 1960, and the following officers of the corporation were elected: Donald C. Power, chairman of the board and chief executive officer; Don G. Mitchell, president; Thomas A. Boyd, executive vice president — administration; Jacob B. Taylor, executive vice president — Finance; Leslie H. Warner, executive vice president — manufacturing; Frederick J. Bell, vice president; Theodore F. Brophy, vice president and general counsel; Theodore S. Gary, vice president; George W. Griffin, Jr., vice president — public relations; Leon C. Guest, Jr., vice president and controller; W. R. Jarmon, vice president — revenue requirements; George P. Norton, vice president — corporate relations and advertising; R. Parker Sullivan, vice president — marketing and sales; W. G. Wright, vice president — operations; H. H. Howlett, secretary; Ralph D. Heusel, treasurer; Raymond E. Dolar, controller — telephone operations; Sherman C. Wilcox, assistant secretary; C. T. Downey, assistant secretary; Daniel McKenna, assistant secretary; and G. Robert Howard, assistant controller.

Chicago Attorney Files Another Lawsuit Against Illinois Bell

HARRY BOOTH, Chicago attorney who has frequently participated in litigation against all types of utilities, has filed a suit in Cook County Circuit Court asking $50,000,000 in "damages" or refunds from the Illinois Bell Telephone Co. and the American Telephone & Telegraph Co. The suit alleged that the amount cited is what Illinois Bell has collected over the past three years to produce a rate of return above 6% on net investment. The suit also asked $1,000,000 damages from Illinois Commerce Commission Chairman George R. Perrine.

An Illinois Bell spokesman pointed out that Illinois Bell's earnings have averaged 4.37% on plant investment during the entire postwar period.

Henson, Cashel Named USITA Directors; Boyd Becomes V.P. Of Association

PAUL H. HENSON, executive vice president of *United Utilities, Inc.*, and *Charles R. Cashel*, manager of the *Worthington (Minn.) Telephone Exchange Co.*, have been named to fill vacancies on the board of directors of the US Independent Telephone Association,

She's cool and comfortable... and You collect!

Here's a hot scoop on a cool young lady! As reported in the ARIZONA REPUBLIC, this lovely young miss finds telephoning a pleasure at this newly installed Outdoor Telephone Canopy — newly installed, that is, by the Mountain States Telephone and Telegraph people in Phoenix, Arizona. They are as pleased as punch that they can finally replace the "hot box" booth with the cool, clean and comfortable GLADWIN OUTDOOR TELEPHONE CANOPY!

LOW IN COST . . .
HIGH IN QUALITY . . .

Gladwin's Outdoor Telephone Canopy affords protection from heat . . . assures privacy, visability, and minimum street noise.

UL Approved

GLADWIN PLASTICS, INC.
165 COURTLAND ST., N.E.
Atlanta 3, Georgia
Phone JA 5-5384

"NEWSLETTER"

(Concluded from page 12)

and *Thomas A. Boyd*, executive vice president of the General Telephone & Electronics Corp., has been named third vice president of the USITA.

Boyd, as third vice president, succeeds the late *Elnathan C. Gates*, while Cashel replaces Gates on the board. Henson succeeds the late *Ralph F. Lucier*, who was operations vice president of United Utilities.

NARUC Announces Second Two-Week Course At Georgia Tech On Regulation

THE SECOND two-week training course for regulatory commission personnel, set up by the National Association of Railroad & Utilities Commissioners in cooperation with the Georgia Institute of Technology, will be held July 11-23 at Georgia Tech, it was reported last month.

The course is open to staff members and commissioners, and is designed to give the students a review of principles and a broad concept of the American economic system as applied to regulatory commission administration. The first week will be devoted to an intensive study of the economic background of regulation, while the second week will concentrate on preparation and conduct of rate cases.

United Utilities Reports Record Earnings For '59

THE 24 COMPANIES in the *United Utilities System*, which provides telephone, electric, natural gas, propane gas and water services to more than 500,000 customers in 16 states, set new records in 1959 in earnings, revenues, dividends paid, and additions to facilities, the company's Annual Report revealed last month.

While revenue gain was prime consideration in establishment of record earnings, contributing factor was long-range program of modernization with emphasis on conversion of manual telephones to dial operation, which reduces operating costs, *C. A. Scupin*, president, said. With outlook for the service area promising, the utility will move ahead with a record construction program in 1960, he added.

Operating revenues of the system last year amounted to $42,442,240, compared with $38,151,477 a year before. Of the $4,290,763 increase in revenues, the telephone division provided $3,725,337 of the gain.

Consolidated net income available for common stock and surplus in 1959 was $4,921,303, equal to $2.09 a share on the average number of shares outstanding. In 1958, earnings were $3,724,699, or $1.67 a share on a smaller number of shares outstanding.

Expenditures for gross property additions amounted to $20,028,817, with telephone operations accounting for 95.5 per cent. The 1960 program calls for gross additions of about 25 million dollars. Total investment in fixed assets December 31 was $152,135,209, compared with $138,916,308 a year before.

Last year 42 exchanges serving more than 100,000 telephones were converted to dial operation. A year before the conversions of 31 exchanges involved about 21,000 telephones. This year it is planned that 60 exchanges will be converted to dial, bringing the system to a 77 percentage of dial operation, compared with less than 45 per cent at the close of 1958, Scupin said.

United Utilities, which is the second largest wholly-owned Independent telephone system in the country, had a gain of 14,980 stations last year after giving effect to the sale of 18 exchanges with 4,091 telephones in Missouri and Kansas. The total number of telephones served was 466,607, against 451,302.

Scupin revealed that negotiations are nearing completion for the acquisition of a telephone company in the Pacific Northwest that will add 4,800 telephones to the system.

West Coast Tel. Files Complaint On Toll Settlement Procedures

WEST COAST TELEPHONE CO., Everett, Wash., has filed complaint with *Washington Public Service Commission* requesting that *Pacific Tel. & Tel. Co.* be required to accept procedures set forth in the United States Independent Telephone Association's "Separations Manual" for determining toll settlements between the two firms.

No formal agreement for computing the division of toll charges has been in effect between the two companies since January of this year when West Coast cancelled a prior agreement of August, 1958. According to the complaint, West Coast entered into the 1958 traffic agreement with the Bell System company as a "temporary" expedient following cancellation of a similar pact dated August, 1953. Following the 1958 agreement, the complaint states, West Coast "has requested that such agreement be revised upon a more equitable basis," but that Pacific Telephone "has refused to enter into a reasonable and proper agreement. . . ."

Independent Telephone Survey Made By "Nation's Business"

LEADING INDEPENDENT telephone companies plan to spend an average of almost $1 million each for new construction, machinery and equipment in 1960, according to a survey recently conducted by *Nation's Business*.

Office equipment, building materials and fleet cars and trucks figure prominently in the buying plans of these companies, 64% of whom service over 1,000 telephones. The survey report also measures car and truck ownership by brands and business insurance coverages. Copy of complete report is available from Herman C. Sturm, director of advertising, Nation's Business, 711 3rd Ave. at 44th St., (Dept. TE&M), New York 17, N. Y.

BREAK SERVICE BOTTLENECKS

Install new improved

USI Multi-frequency RINGERS

HARMONIC Frequency (cps)	Ordering No. with Volume Control	Ordering No. without Volume Control
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25	GB701	GB601
33⅓	GB702	GB602
50	GB703	GB603
66⅔	GB704	GB604
SYNCHROMONIC		
16	GB705	GB605
30	GB706	GB606
42	GB707	GB607
54	GB708	GB608
66	GB709	GB609
DECIMONIC		
20	GB710	GB610
30	GB706	GB606
40	GB711	GB611
50	GB703	GB603
60	GB712	GB612

The USI Multi-frequency Ringer is designed to fit any "500" type telephone set that will accommodate a WE Type "C" ringer.

This ringer features a patented mechanical tuning system that is independent of the tapper and gongs.

USI Ringers have lower current requirements. You can reduce interference to adjacent circuits with USI Ringers and use more ringers on a given line.

The extra high impedance of USI Multi-frequency Ringers reduces voice frequency loss.

Check your requirements in the ordering schedule at left and call or write Sales Department today.

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INDUSTRY OBSERVATIONS

By L. A. GRITTEN

MAY DAY brings thoughts of many subjects — the Druids and the Maypoles of Britain — the popularity of kitchens — government expenses and a whiff of oxygen.

May Day

THE FIRST day of May has had its historical ups and downs. Two thousand years ago, the Druids observed their equivalent of our May Day with appropriate human sacrifices. Then it gradually developed into the happy pageantry of mediaeval Britain, with Maypoles garlanded with spring flowers, gaily dressed maidens, Morris dances and so forth.

In 1644 the Puritans banned the celebration, but it survived their somber disapproval, coming back to its own in the wild rejoicings of the Restoration. The spirit of the festival lingered on into modern times but was finally lost when in 1889 the International Socialist Congress declared May first to be an international Labor holiday. Since then, the suppression of May Day socialist riots throughout the world probably has cost more blood than ever the Druids managed to shed on their reeking stone altars.

Back To The Kitchen

IS AMERICA developing a trend toward informality, shirtsleeves, ties loosened or removed, felt slippers and five o'clock shadows? A comparison of favored locations, issued recently by the A. T. & T. Co., shows that from 1955 to 1958, the kitchen displaced the living room as the most popular location for the residential telephone.

During that period, the kitchen location increased from 19.7 per cent to 28.5 per cent, and bedrooms gained from 18.2 per cent to 22.6 per cent, while at the same time living room phones dropped from 28.0 per cent to 25.3 per cent. Halls and libraries also fell in favor.

Yet telephones are more than ever graceful in design and suited to the elegance of the "best room," and the sale of colored telephones has been phenomenal. Perhaps we are returning to the habit of colonial days when everyone normally lived in the kitchen and the best room was a sanctum sanctorum reserved for weddings, funerals and visits of distinguished strangers.

Company Messages

IN MICHIGAN, a manufacturing concern carries this message on its pay checks, in red ink: "This week you paid $..... to the federal government. Do you know how it is being spent? Have you heard of any waste?"

With the occasional addition of a stuffer, giving a few cold facts about governmental expenditure, this could be more effective than reams of stereotyped political arguments.

The Atlas Tube Company in Chicago prints on the face of its envelopes: "Good morning and God be with you, this day and always." They report "nothing but pleased response from the people we do business with."

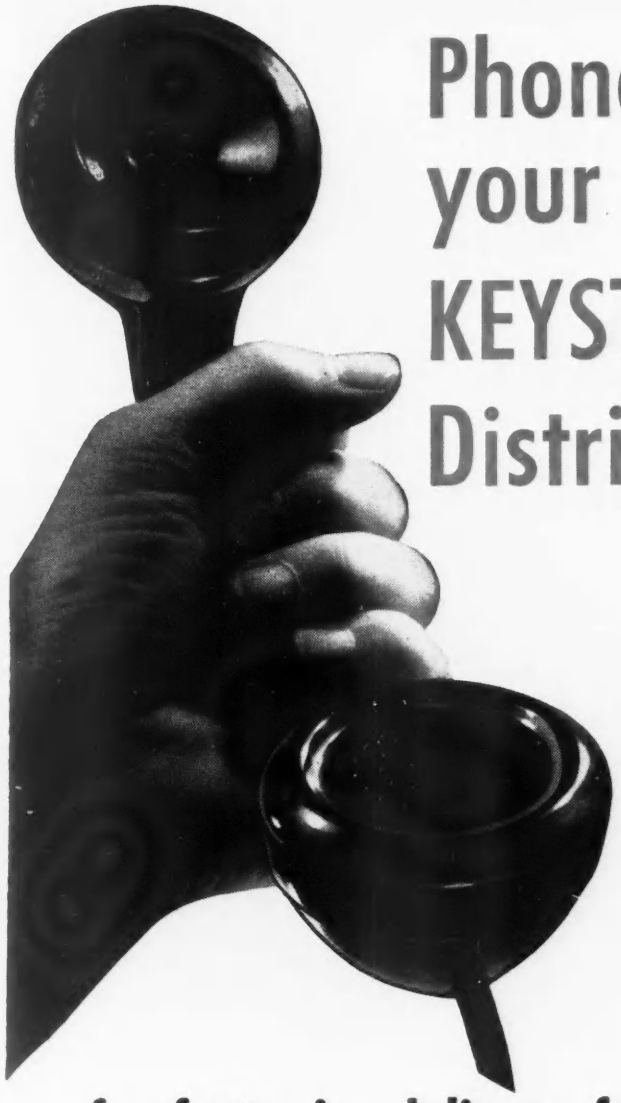
However there are pitfalls, and a contrary response may be recorded. Some years ago one of the largest of the Independent telephone companies printed "The Friendly Company" under its name on all letterheads, envelopes, etc. Eventually this was discontinued, because it was found that it elicited sneers and jibes more often than friendly reactions.

What has been the experience of your company? We should be interested to hear.

Where's That Waitress?

OUR REMARKS about the inattentive waitress problem caught the eye of *Lee Strouse, Jr.* of Automatic Electric's Public Relations department in Northlake, Ill. Mr. Strouse informed us that in 1958 an "Order from table to kitchen by phone" system was installed in one of the King's restaurants in Lincoln, Nebraska. The table telephones connect to a cordless type switchboard.

Evidently the customers like it, for *L. C. Price*, owner of the chain of King's restaurants, tells us that the service is very satisfactory and that



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Sioux City, Iowa
Sioux Falls, South Dakota
Spencer, Iowa
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Waterloo, Iowa

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Fargo, North Dakota

Joslyn Mfg. and Supply Co.
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Chicago, Illinois
Dallas, Texas
New Orleans, Louisiana
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Oklahoma City, Oklahoma
Omaha, Nebraska
St. Paul, Minnesota

Kingsport Electric Co., Inc.
Kingsport, Tennessee

Line Material Industries
Milwaukee 1, Wisconsin

Marshall-Wells Canadian Companies, Ltd.
Winnipeg, Manitoba, Canada

The Mine & Smelter Supply Co.
Salt Lake City, Utah

Nelson Electric Supply Co.
Dallas, Texas
Lubbock, Texas

Jack Pruzan Co.
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Suttle Equipment Company
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Tennessee Valley Electric Supply Co.
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. . . for fast wire delivery from stock

When wire is needed, call your Keystone Wire Distributor. His stocks are well supplied. He can give you prompt delivery in any emergency.

Keystone Telephone Wire is available in a full range of Class A line wire in 50M, 85M, and 135M tensile strengths, and meets the specifications of A.S.T.M., A.T.&T. and is approved bv R.E.A. Galvanized bond, tie and construction wire are also avaiiable at your Keystone Distributor.

A phone call will bring you fast delivery . . . contact your Keystone Distributor for your next wire need!

KEYSTONE STEEL & WIRE COMPANY, Peoria 7, Illinois

KEYSTONE
Wire for the Telephone Industry

. . . by the makers of famous Red Brand Fence

"OBSERVATIONS"

(Concluded from page 16)

he plans to make similar installations in his other restaurants. The idea sounds too good to have been limited to one city. We shall be interested to hear about other "waitress elimination" systems.

For Whom The Smell Toils

SOME television programs smell, that we know; but we didn't realize how they smelled until we read about a patient in a Long Island hospital. He found that pressing on the button of a can of air-deodorant caused his remote-control TV set, and other similar sets in the hospital, to change channels. The official explanation was that the spray can created high frequency sound waves that affected the changing mechanism in the TV sets.

"Tel-Interpret"

RECENT news releases stated that "Tel-Interpret," a German telephone interpreting service, enables Germans to converse with English-speaking persons by means of a simultaneous interpretation device. The charge is quoted as 25¢ a minute extra.

This sounds like a much-needed innovation. However, our information is not as optimistic as the news items. The director of the West German Post and Communications (Bundesminister fur das Post und Fermeldewesen) at Bonn tells us in part, "The Deutsche Bundespost does not operate any service . . . enabling the two parties to talk in their own national language and yet hear each other in their respective language through the use of a telephone interpreting set. Nor is it intended to introduce a telephone translation service on an official basis." He states further that Herr Fredo Nestler, manager of Tel-Interpret, has been trying for some years to introduce such a service for use "on a purely private basis only," but that Herr Nestler has been unable to meet the Bundesminister's requirements.

Friends Can Be Honest

THE RESIGNATION of FCC Chairman *John Doerfer* makes one wonder. If he was guilty of wrongdoing in accepting the hospitality of a man whose business is influenced by FCC decisions, how many thousands of business men are something less than lily white? After all, between Doerfer's yachting trip and the manufacturers' parties at utility conventions, the distinction is merely one of degree. In either case, officials with an obligation to the public accept the hospitality of people who may be affected by their business decisions.

Why not? We think the contention is silly that an honorable man cannot adhere to honorable decisions if his business contacts lead to friendly and personal associations. The other kind of man, the fellow whose actions are for sale regardless of ethics, will peddle his wares with or without benefit of expensive entertainment.

Brevity In Communications

HENRY HAZLITT (*Business Week*) says: "I suspect that the number of people who read a message varies inversely as the square of its length."

Amen! That is certainly true in certain business communications. If every telephone man were fined one cent for each superfluous word in his letters, telephone companies would operate more efficiently with fewer filing cabinets.

Pure-Air Idea From France

IN PARIS, they now have booths installed in the streets, bearing the description: "STATION AIR-PUR." Smog-distressed Frenchmen can put a coin in a slot and inhale a whiff of pure oxygen.

We should install some such device in our telephone booths; there can be few places on earth where an occasional lungful of pure air would be more desirable — or more surprising. — *L. A. Gritten.*

"CHARLIE," by Jim Counts

I'M THE GENERAL MANAGER OF THE TELEPHONE COMPANY...
I JUST DO THIS FOR THE EXERCISE!
CHARLIE! COME HERE A MINUTE!
...ER... EXCUSE ME A MINUTE, SON... TH' PRESIDENT WANTS TO SPEAK TO ME!
Jim Counts

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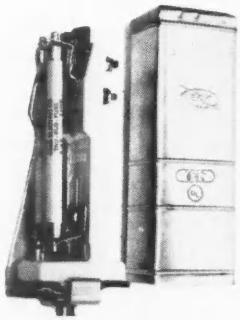
SUPPLY LINES

SUTTLE — Suppliers of Equipment to Telephone Men — Since 1910



INDOOR OUTDOOR COOK PROTECTOR

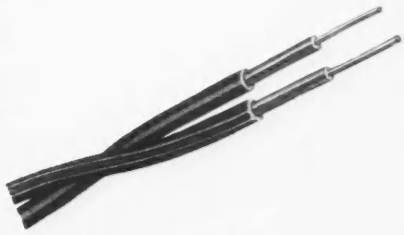
COOK ELECTRIC'S Type "O" Substation Protectors are a single circuit protector equipped with a pair of fuses and a pair of high-potential arrestors. The body is a single-piece, heavy glazed porcelain. Fuse and lightning arrestor clips are phosphor bronze fastened to the body in a single-piece, heavy glazed, on the reverse side, thus giving instrument wires maximum protection for the hot wire. In stock at **SUTTLE'S** Lawrenceville, Illinois, warehouse.

SE-21B3

INDICATOR LIGHT HOUSES A NEON FLASHER BULB

which lights in an alternating pattern on incoming ringing voltage—*no relays necessary!*

Also included is the new higher 180° beehive lens with parallel reflective ridges. The **SUTTLE** SE-21B3 Indicator Light solves the visual signaling problem without the high cost of relays. Order from **SUTTLE** or your local distributor today! Price, $6.80 ea.



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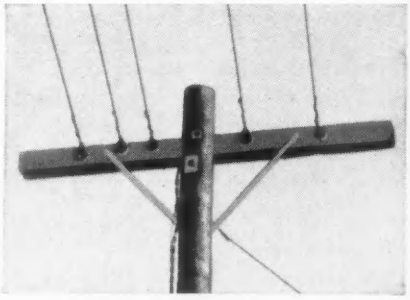
For connecting open wires together or to cable terminals, **DIAMOND WIRE** offers its neoprene covered Bridle Wire. This rubber insulated, soft tinned copper wire offers exceptional strength and holding power. The neoprene insulation is *permanently* welded to the conductor. All types of **DIAMOND** Telephone Wire are stocked by **SUTTLE** in quantity and usually can be delivered immediately. Check **SUTTLE'S** prices *before* you buy!



AT A DEAD-END? . . .

What do you do when you come to the end of the road? Simply put up a Continental dead-end arm. **Continental Crossarm Co.** makes them — along with other special needs for operating telephone companies, such as guard arms and alley arms — some of them extra length to mount across the alley. **Continental Crossarms** are cut from select fir and southern pine and are preservatively treated. These arms meet RTA, REA, and EEI specifications. Just send us a rough sketch with dimensions — and get fast delivery from **SUTTLE** at Lawrenceville.

OUTDOOR WEATHERPROOF JACK BOOSTS REVENUES!

Subscriber demands for outdoor, backyard, or patio telephone service are growing fast. The new SE-16151 Outdoor Weatherproof Jacks from **SUTTLE** "fill the bill" for every outdoor use. The noncorrosive, waterproof, aluminum receptacle houses the SE-493A jack. This new jack makes an excellent extension sale-revenue booster. Another **SUTTLE** *quality* product at low cost. Order from **SUTTLE** or your distributor.

Price $6.50 each

EVERYTHING IN TELEPHONE PRINTING

SUTTLE has the experience and the equipment to give you the finest quality Independent Telephone Company forms and directories at a price which is right. Everything you need — from directories to standard toll tickets — you can get on one order form when you order from **SUTTLE.** Check our low prices on standard forms. For real savings, let us quote you on your directories. Ask us for free samples. Write for latest forms price list — FREE!

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General Cable's conveniently located plants and distributing centers give you the best delivery possible on Alpeth and Stalpeth cable. In addition, Leich's experienced people check and handle each order quickly and carefully to assure satisfaction.

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Only with Alpeth and Stalpeth from Leich do you get so much cable for your money. Every pair of General Cable Alpeth is guaranteed in all sizes. General Cable Stalpeth actually guarantees more pairs than *any other manufacturer* of Stalpeth. In fact, in 19 and 22 AWG all pairs are guaranteed in *all pair sizes.*

3. ECONOMICAL INSTALLATION

with lightweight Alpeth & Stalpeth

Your installation costs are cut when you use these two lightweight cables. In aerial installations you can reduce pole supports and increase span lengths. In underground systems, pulling is easy and economical.

4. CORROSION-RESISTANT SHEATHS

General Cable's Alpeth and Stalpeth polyethylene sheathed cables give you superior protection against moisture and corrosion.

5. SUPERIOR TRANSMISSION

You can be sure of superior transmission with General Cable, whether for exchange areas, toll or trunk lines. Lower capacitance unbalance values and uniform mutual capacitances will minimize crosstalk and noisy circuits.

To be sure your cables give you all these benefits, order Alpeth and Stalpeth from Leich.

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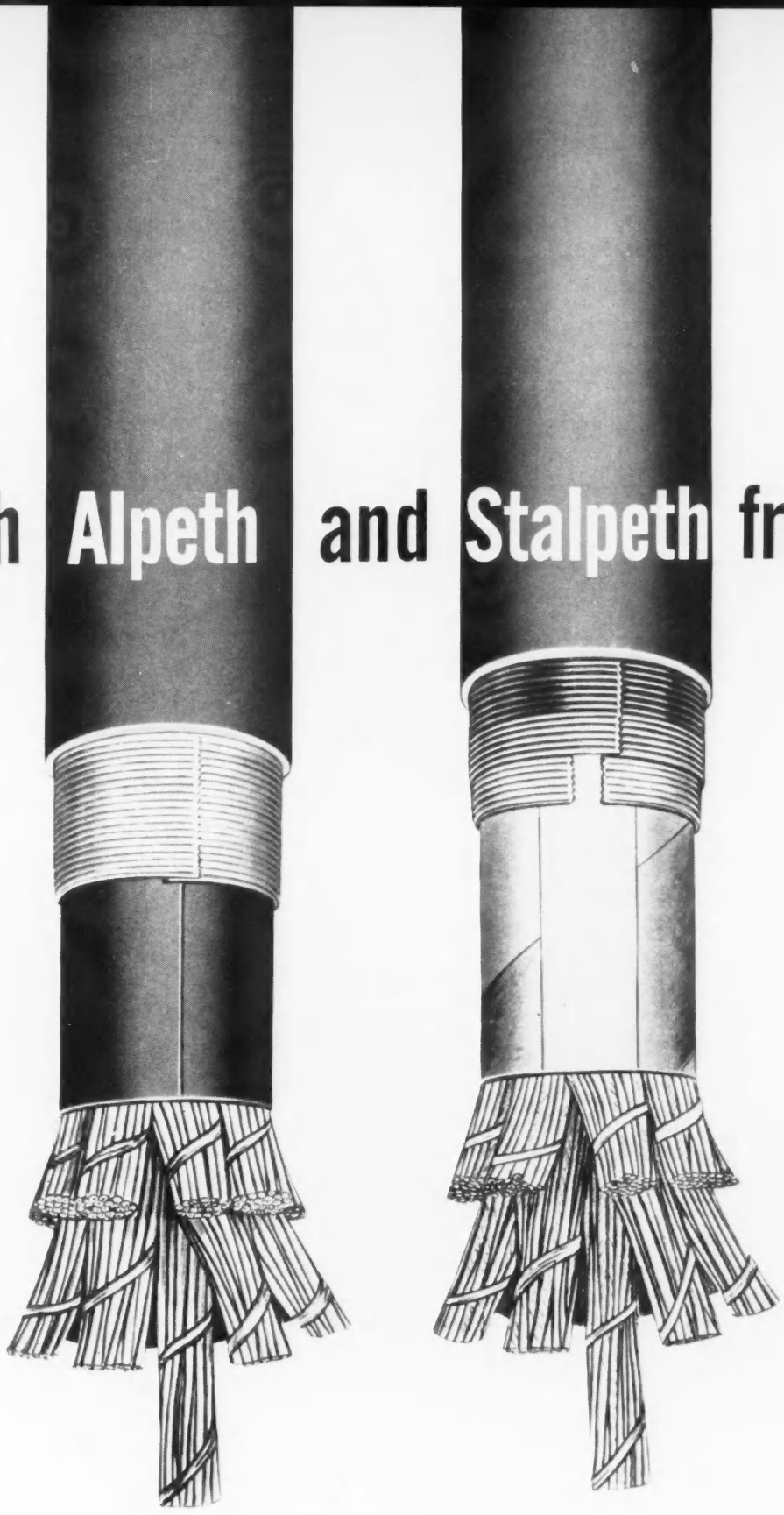

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WASHINGTON OBSERVATIONS

By ROLAND DAVIES and FRED HENCK

Hearing on AT&T tariff governing interconnection of privately-owned communications system of railroads with telephone network ends after eight weeks of hearings before FCC.

HEARING on the tariff of the American Telephone & Telegraph Co. governing interconnection of privately owned communications systems of railroads with the toll and exchange networks of telephone companies has finally come to an end after eight solid weeks of hearings before the Federal Communications Commission.

Proposed findings and conclusions in the case are now to be submitted by the parties by Friday, July 8. Examiner Jay A. Kyle will not issue an initial decision, but will certify the record to the FCC for initial decision, in a procedure somewhat similar to that followed in the private line rate hearings at the FCC.

Generally, the witnesses for a half dozen railroads who appeared in the final two weeks of the hearings said that their companies either prohibit or discourage interconnection of their private systems with the long distance networks of telephone companies, and that interconnected calls are usually those between the railroads' systems and local exchange telephone facilities.

Most of them argued, however, that they should have the right to make such interconnections without limitation. Several gave "tying up" the railroad circuits as the reason for discouraging toll interconnection. One railroad witness, however, declared that toll interconnection "short hauls the telephone company," and that "It is not a fair practice."

Much of the discussion of toll interconnection came after statements of counsel on the subject of FCC jurisdiction over interconnection with local exchange service. Several railroad attorneys declared that the Commission has such jurisdiction, while AT&T General Solicitor John T. Quisenberry responded that exchange facilities are "pretty clearly within the jurisdiction of the state commissions."

FCC staff attorneys did not take a flat position on the subject. In discussion of an FCC order issued at the end of March "clarifying" the issues in the case, however, they commented that the original hearing order was intended to include consideration of interconnection "with the toll facilities of the telephone company."

The clarifying order was issued after the General Telephone & Electronics Corp. took the position that the hearing order encompassed only interconnection of the railroad systems with private line services furnished by telephone companies.

The FCC then issued an order stating that the issues in the hearing "shall include consideration" of interconnection provisions in the interstate message toll telephone tariff, as well as the private line telephone tariff.

The testimony of railroad witnesses that their companies discourage toll interconnection — that is linking the railroads' private systems with the telephone companies' toll networks, as opposed to interconnection of the railroad systems with local exchange facilities of the telephone companies — might have considerable significance in the case, it is felt, because of the arguments made questioning the jurisdiction of the Commission over interconnection with the local exchange service.

In this broad connection, Glen Ireland, vice president-operations of the Pacific Telephone & Telegraph Co., offered direct testimony on relative intrastate and interstate usage of subscriber plant, to complete the record on the jurisdictional point. Mr. Ireland declared that in different Bell System companies and areas, the percentage use for interstate, based on call minutes, ranges from 2% to 14%, with an average of 5½%. He added that the percentage use of private branch exchange equipment for interstate is less than for subscriber plant as a whole, because of the intercommunicating use made of PBX stations.

ORDER permitting telephone companies to give free service in connecting non-network affiliated stations with standard broadcast networks during a

Conelrad drill or radio alert has been approved by the Federal Communications Commission.

A new rule section, 3.980, to provide for the free connection in cases of radio stations holding national defense emergency authorizations from the Commission, where they have a connection from a studio or transmitter to a telephone company central office for that purpose, and when the network authorizes the connection, was added by the FCC. The action was taken by the FCC under section 210(b) of the Communications Act, which permits the Commission to authorize free service by the carriers in the interest of national defense.

Carriers providing the free service are to file semi-annual reports with the Commission showing the call letters and locations of affected broadcast stations, and the charges in dollars which would have resulted if the service had been charged for.

WIRETAPPING bill which would in effect authorize individual states to permit law enforcement officers to tap wires and use the evidence obtained in court has been offered in the Senate and the House of Representatives by Senator Kenneth Keating (R., N. Y.) and Rep. Emanuel Celler (D., N. Y.).

The bills were offered following a two-day session before the State Investigation Commission of New York, at which six New York State district attorneys warned that recent judicial decisions limiting the use of wiretap evidence constitute an immediate and serious threat to law enforcement in the state.

Kings County (New York) District Attorney Edward S. Silver, a long-time supporter of the New York state law, under which authorities can put on wiretaps under court order, told the investigation commission that the court rulings will result in "the greatest legal jailbreak that ever happened." New York County District Attorney Frank Hogan said the ban would halt investigation or prosecution of at least 16 current criminal cases.

The bill offered by Senator Keating and Chairman Celler of the House Judiciary Committee would provide that "No law of the United States shall be construed to prohibit the interception, by any law enforcement officer or agency of any state, or any political subdivision thereof, in compliance with the provisions of any statute of such state, of any wire or radio communication, or the divulgence, in any proceeding in any court of such state, of the existence, contents, substance, purport, effect, or meaning of any communication so intercepted, if such interception was made after determination by a court of such state that such interception might disclose evidence of the commission of a crime."

DEFENSE Department official with responsibility in the field of communications research and engineering has called for an end to the confusion of too much paper work and "blue sky" programming in military contracting.

In an address in Washington, Ralph L. Clark, Assistant Director of Defense Research & Engineering (Communications), suggested a possible return to the simpler, more direct approach of World War II days, and its Office of Scientific Research & Development approach for getting things done quickly, in place of the "complex widely dispersed system for evolving new weapons" which, he said, exists today.

He noted that the World War II system which "proved so effective in the management of our wartime R&D effort is duplicated almost in total today in the structure and relationships of the Soviety Academy of Sciences and the Ministry of Defense."

The Pentagon official conceded that it is probable that in peacetime we can have no other system than that which exists today, but, he added, "we should recognize the price we pay for it. This system which has fostered competition for research and development has had several unfortunate effects — it has inflated the demands on our technical manpower, tended to short cut essential research and development of new techniques and components and often resulted in attempts to design operational systems, using unproven techniques and components which have caused serious delays or costly cancellations."

IN RESOLVING a long-standing dispute between the Western Electric Co. and the Council of Western Electric Professional Employes-National as to what constitutes a bargaining unit of the company's professional engineering employes and in directing a representation election among the some 6000 employes who are affected, the National Labor Relations Board has ruled on the definition of "professional employe" with resultant broader interest for the industry than in the immediate case.

The basic dispute in the case between Western Electric and CWEPE was whether the NLRB should adopt, as urged by the employe organization, a specific formula containing educational and experience requirements, "the individual fulfillment of which would be a prerequisite to inclusion in the unit."

Western Electric on the other hand, the NLRB noted, contended that "no predetermined, inflexible formula such as suggested by petition is justified." The company asserted that "it is the character of the work itself which determines whether the employes performing it are professional."

The NLRB order concluded that "the petitioner's formula approach for determining whether professional work "is being engaged in by professional employes' is not warranted," and said that the appropriate section of the National Labor Relations Act "defines a professional employe in terms of the work he performs. And board decisions make it clear that it is the work and not individual qualifications which is controlling. . . ."—*Roland Davies and Fred Henck.*

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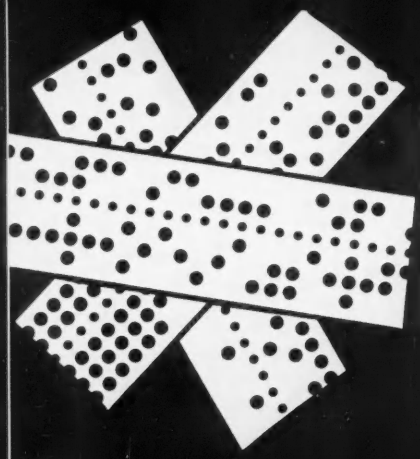
gives you AUTOMATIC TICKETING o



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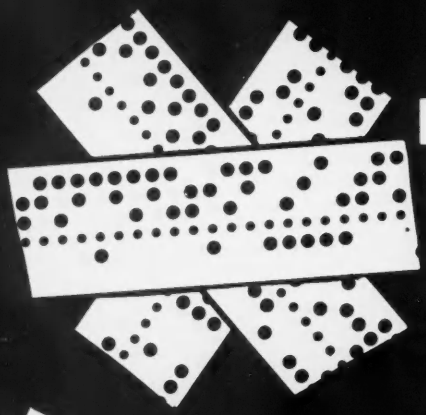

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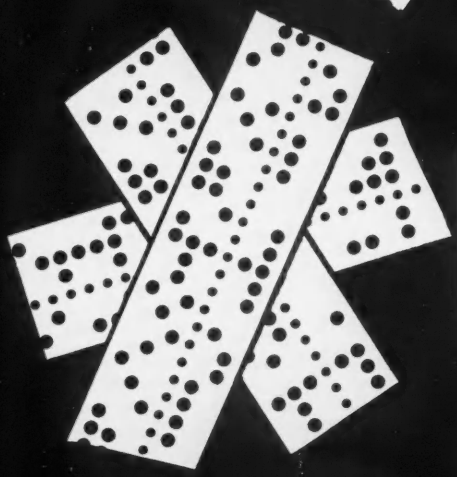

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CALLS

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THEY LOVE ALCOA ALUMINUM BOOTHS IN WOOSTER OHIO

REPORTS E. V. Ault, Commercial Manager, Wooster Division, Telephone Service Company of Ohio:

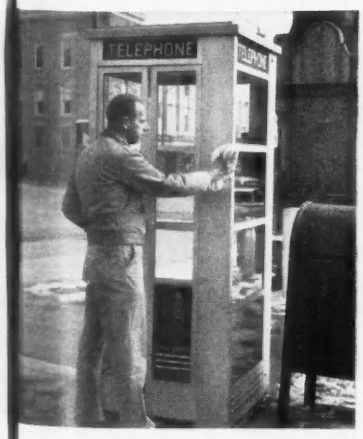
"As a public service, we installed this Alcoa outdoor booth on the public square in Wooster, Ohio, in October, 1957. While our primary intention was to furnish additional convenience for our local subscribers, we are naturally pleased that the booth also contributes to our revenue requirements. This booth is so popular that its revenues average 15 per cent above the 79 other aluminum booths we have in the state."

Mr. Ault continues: "We like the Alcoa booth for other reasons, too. It's economical to maintain. It needs only routine sweeping and an occasional washing down. Our Ohio snows can't hurt it, so it never needs painting."

Telephone companies everywhere are discovering that Alcoa® Aluminum booths build revenue and customer goodwill. Learn how they can do the same for you. Write for free brochure . . . or ask your jobber to show you the Alcoa Goodwill Kit—the free promotional package that comes with every Alcoa booth. Aluminum Company of America, 1721-E Alcoa Building, Pittsburgh 19, Pennsylvania.

nstalled at a heavy traffic location—Wooster's public square—this Alcoa Aluminum outdoor booth serves local residents and picks up additional revenue rom transients.

Never needs to be painted," says Mr. ult, " . . . another reason our maintenance costs are negligible with Alcoa ooths."



ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and "Alcoa Theatre" alternate Mondays, NBC-TV

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AE-Lenkurt *telephone* engineers stand ready to relieve you of all your expansion problems. By dealing with an experienced *team*, you're assured of having things done *the right way* from start to finish.

What's more, you can count on impartial recommendations—because we handle a *complete* line of communications equipment, and have no reason to "push" any one system.

Lenkurt equipment lets you *add as you grow*, the "building-block" way, with the full assurance that what you install today won't be outdated tomorrow.

In addition, AE will serve as your headquarters for all telephone supplies—from cable and exchange equipment to fully integrated communication "packages."

For full details on progressive planning of *your* expansion program, call your Automatic Electric representative, or mail coupon today.

ALL YOUR COMMUNICATIONS NEEDS FROM ONE DEPENDABLE SOURCE

Automatic Electric Sales Corporation
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Attention: Mr. T. B. Collins, Director Carrier and Radio Sales
Please send literature on:

☐ Lenkurt Carrier ☐ Lenkurt Microwave
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Lenkurt 45-Class Carrier, for instance...

provides direct interconnection at carrier frequencies

Lenkurt 45-Class Carrier offers the most logical approach to profitable circuit expansion. Used with any combination of open wire, cable and microwave, Type 45 equipment provides *direct interconnection at carrier frequencies*—permits the complete coordination of your entire carrier network.

Five interconnectible 45-type systems are available to meet any transmission situation: 45A (12 channel, open wire); 45BN (24 channel, cable); 45BX (24 to 264 channel, radio); 45C (16 channel, open-wire pair); 45CX (4 channel, narrow-band radio).

All 45-Class units feature miniaturization and the extensive use of plug-in components for easy maintenance. Circuit advancements such as automatic channel level regulation and crystal-controlled carrier frequency supply assure top toll-quality performance.

AUTOMATIC ELECTRIC

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"THERE IS NOTHING FINER THAN A STROMBERG-CARLSON"

Who said Stromberg-Carlson can't give you P.P.C.S.*?

We'll give you a quotation on it right now!

"Well," you might ask, "what'll it do to my present toll ticketing system?"

No problem—if you have XY® Toll Ticketing. Just add P.P.C.S. It's that simple. Nothing more than minor additions needed.

So—if the economics of your business calls for the ultimate, it's yours from Stromberg-Carlson. No obsolescence of your present XY Toll Accounting system. Your investment is protected.

And remember this: XY Toll Ticketing equipment, with magnetic tape recorder, is more versatile, more economical than competitive gear. You get direct readout into punched cards, punched tape, automatic typewriter.

Want that quotation on P.P.C.S. now? Give us a buzz. In Atlanta call TRinity 5-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

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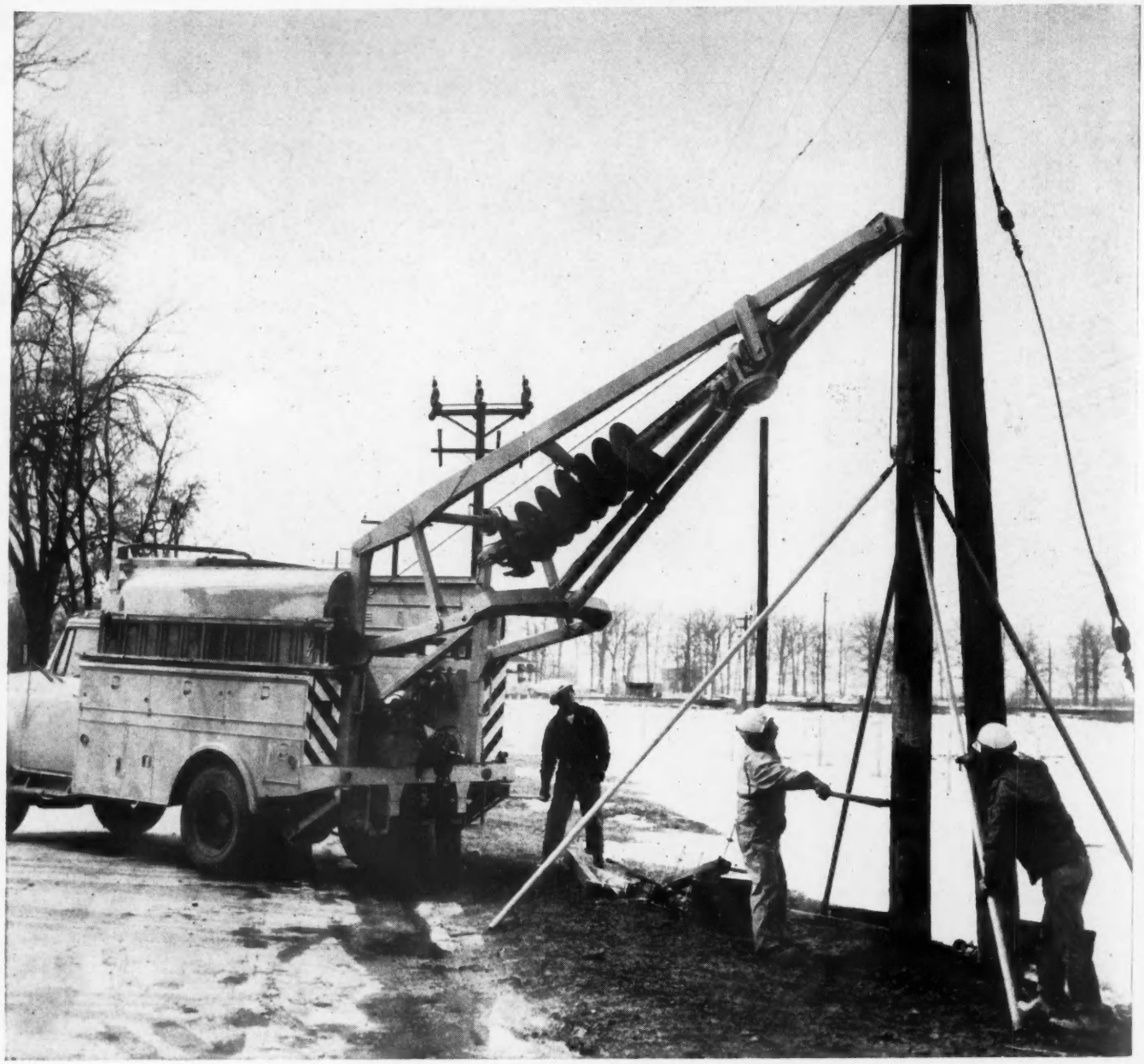
A DIVISION OF **GENERAL DYNAMICS**



THREE MEN ON A WORKHORSE
save utility $900 in 10 days

Slashing $905.60 from a utility's construction and maintenance cost in a 10-day comparison period is no small accomplishment.

Yet it was easy. Holan's Three-Man Crew Unit went into the field and did the work of five men. Labor costs were drastically reduced—and two men were freed for other work assignments.

The three men used the spacious Holan CM-138 Line Construction Body equipped with a powerful, single-cylinder Model 25-C Derrick and 4401-H Earth Borer.

The five-man crew traveled in a line construction body with crew compartment. A two-legged derrick was used, but all digging was done manually.

The cost comparison was made on such jobs as setting, removing and loading poles, digging anchor holes, pulling butts and installing pole facilities.

Write today for more information on Holan's Three-Man Crew Unit—the body-derrick-digger combination that conserves manpower and saves you money.

Holan Corporation, 4100 W. 150th St., Cleveland 35, Ohio
Plants in: Cleveland, Ohio; Griffin, Georgia; Phoenix, Ariz.

Holan

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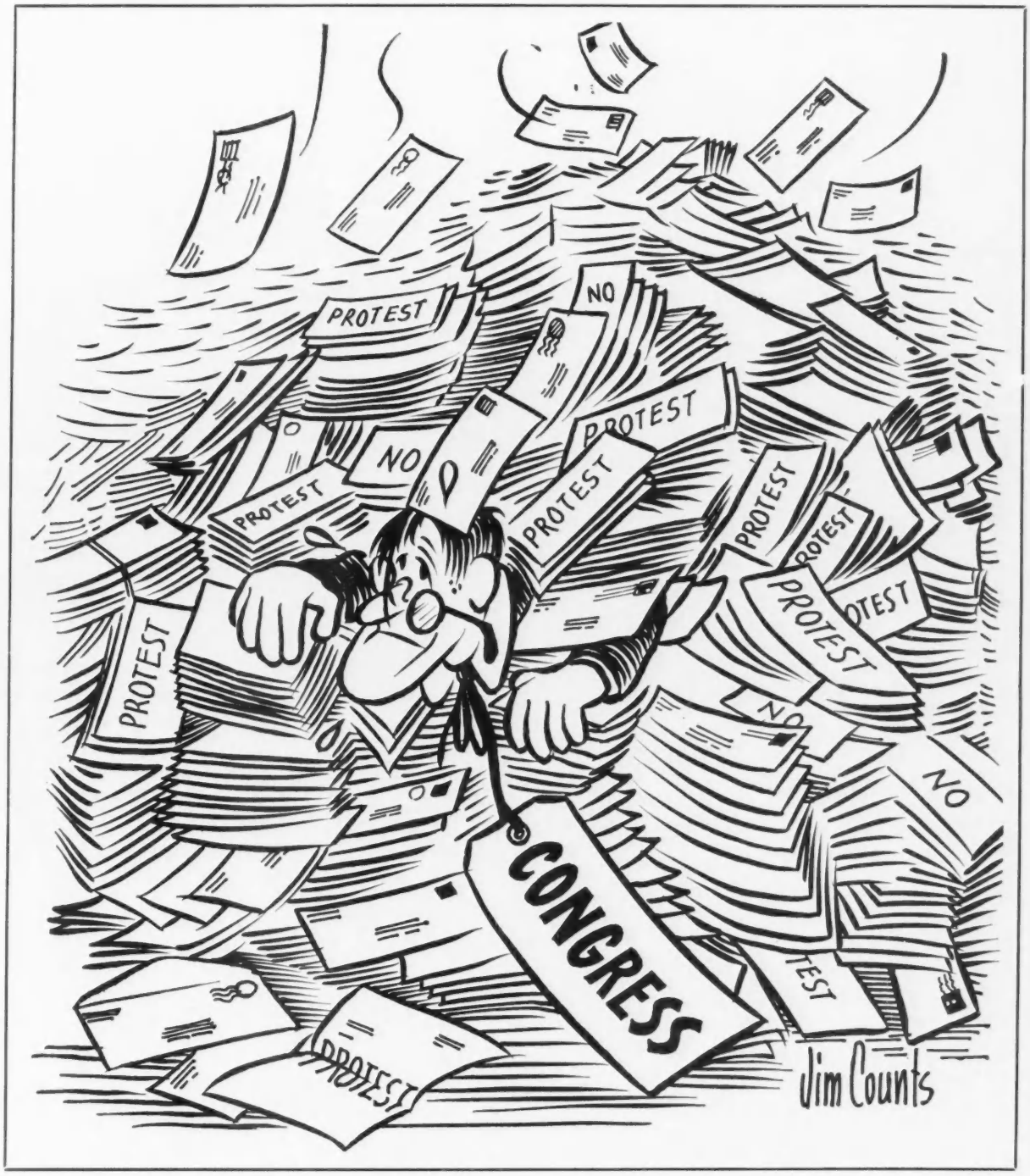
HOLAN

EDITORIAL

"Protest That Telephone Excise Tax Now!"



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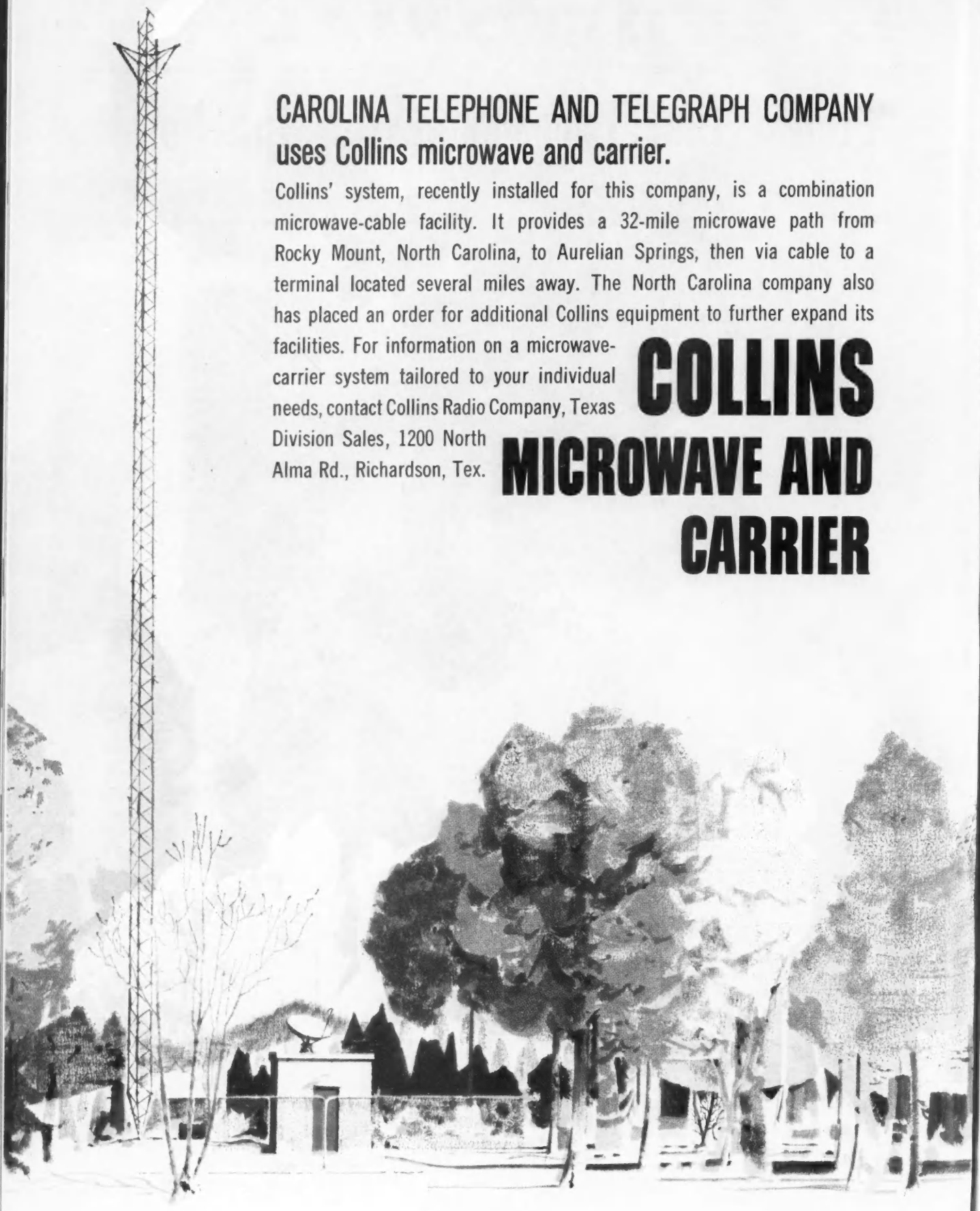
CAROLINA TELEPHONE AND TELEGRAPH COMPANY uses Collins microwave and carrier.

Collins' system, recently installed for this company, is a combination microwave-cable facility. It provides a 32-mile microwave path from Rocky Mount, North Carolina, to Aurelian Springs, then via cable to a terminal located several miles away. The North Carolina company also has placed an order for additional Collins equipment to further expand its facilities. For information on a microwave-carrier system tailored to your individual needs, contact Collins Radio Company, Texas Division Sales, 1200 North Alma Rd., Richardson, Tex.

COLLINS MICROWAVE AND CARRIER



COLLINS

COLLINS RADIO COMPANY • DALLAS, TEXAS • CEDAR RAPIDS, IOWA • BURBANK, CALIFORNIA

By JAMES L. MORRISON

General Commercial Superintendent,
West Coast Telephone Co.,
Everett, Wash.

Preparing For The Rate Case

The customers are the final judges of your rate increase. If they approve you'll have smooth sailing. If they disapprove you can be ridiculed, and bothered with service complaints. (Continued from the Feb. 15 TE&M.)

MORE OFTEN than not, telephone companies will take great pains in preparing the Commission aspects of a rate case. This is as it should be, but somehow, in the process, they tend to overlook or treat lightly another very important audience.

Sometimes rate cases are prepared in an aura of secrecy. Some companies go to great lengths to assure that the "secret" will not leak out before filing time. Others will run subtle advertisements which vaguely refer to the increasing cost of living. From this it is hoped that customers will automatically understand why a rate case is necessary. Even employes are kept in the dark until the magic hour of filing. Then, when the announcements are made they are sometimes couched in a technical language understood by no one but utility executives. It is reasoned that the more the public knows about the rate increase the greater will be their efforts to defeat the proposal. Silence, therefore, is best.

These practices may seem to be successful. Even so, they are the reverse of salesmanship. They start out on a negative premise and never get off the defensive. Success, if any, is illusory and in the long run customer good will is lost.

You should not adopt a silent approach. It is fully within your power to sell your rate increase and win friends in the process. It is within your power to have customer support instead of customer opposition. Furthermore, you can do it without spending a lot of money.

When all is said and done, the customer is the final judge of your rate increase. If he approves, you'll have clear sailing. If he disapproves, you can be dogged with service complaints, be ridiculed and, in the extreme, be threatened with crippling financial losses.

Customer Reaction

LET'S briefly consider a typical customer's reaction when he learns of the proposed rate increase from some source other than yourself. Maybe he reads about it in the newspaper, or sees a notice of hearing on the bulletin board at the post office, or maybe someone tells him on the street.

He, like every other human being, does not like price increases. He doesn't stop to consider that his income may be going up nor does he recall that the price of everything else is up. Mostly, he resents having no choice in the matter. As he and other customers talk over the news, dislike can turn into belligerency. He begins to think of reasons (good ones to him) why you don't deserve an increase. He recalls little service

difficulties and his imagination and anger blow these difficulties into major proportions. Then the rumors start. Someone has heard that you just deposited $10,000 in the bank the other day or that you just bought a farm. Folks are certain that you don't need more money.

By this time some customers have worked themselves into quite a lather. They are certain that your service is no good and each can recall an incident to prove that you don't tend to business. Someone circulates a petition which is mailed to the Commission. Individual letters are written to the Commission. In many of them the customers recall "true facts" about your inferior service. You may notice an increase in trouble reports. All of a sudden you may notice customers "talking back" to your operators. A collection may be started to obtain funds for opposition attorney fees.

All these things can occur and they will continue until steps are taken to turn the opposition into support.

Supply The Complete Story

CUSTOMERS cannot live in a vacuum. A rate increase is news and they will talk about it. If you have supplied them with a full and complete story, then you have done much to fill the vacuum and left little room for rumor and gossip. Half a story, however, is worse than no story. Gossips thrive upon partial information. The information you give must be accurate. Even a complacent customer will rise to battle if he catches you in an untruth.

What can you do to win customer support? Well, let's go back four or five months to the point where your budgets first signaled that rate relief would probably be necessary. At this time you should alert your employes to the possibility of a rate application. Emphasize that it will be two or three months before you can be certain. Explain why you will need rate relief and review your accomplishments since the last increase. Explain to them the importance of good customer relations and ask that they inform you of any unusual service complaints. You also want to know about customers who show hostility. Tell them you need their suggestions for things which might be done to improve service. Ask them for economy ideas which will not degrade service.

Your employes will cooperate with you if you give them a chance. They have a big stake in your success and without their support it will be impossible to obtain customer support. As the weeks go by be certain to keep your employes fully informed.

During these first months you should also start notifying customers that a rate increase may be necessary in the near future. Be casual about it. Drop a word or two here and there around town. Above all, avoid arguments. Remember that customers have their own problems too and you have nothing definite.

Continue this casual "softening up" process until you are certain that an increase is necessary or that it can be postponed. If it can be postponed, tell employes and customers. They will give you credit for being a rare bird in an age when everyone else is raising prices.

Now, several weeks have elapsed and you have reached the point where you are committed to filing an application within the next sixty days. If, in the past few months, you have spread the word that an increase might be necessary you probably have "smoked out" some opposition. That was one of your purposes in the first place. You have also prepared a foundation. Your customers now expect something to happen and won't be taken by surprise.

"Before You File"

WITHIN the 60 days prior to the date of filing, there are many things to do. It will help if you schedule your activities in advance. Write in your rate case notebook ideas in this installment which you can use.

Next, give your employes the facts. Tell them the date of filing, why the increase is needed and how they can help by passing information on to customers. It would be a good idea to give them a supply of "fact sheets." These sheets can be prepared by mimeograph and should contain such essential information as the amount of increase in total and per station, present and proposed rates, and the reasons for an increase. Try for wide distribution of these sheets.

If your employes are loyal they will report opposition. They should also be alert for comments in favor of the increase. At the same time you should be spreading the "word." Personally visit all known and suspected "opponents." Give them a fact sheet to consider. Listen carefully to their arguments and move to correct any service difficulties.

If there is a newspaper in your town, you should present your story to the editor. Thereafter, until a rate order is issued, you should frequently visit him. Tell him the facts and give careful consideration to his suggestions. Small newspapers cannot disregard public sentiment and your newspaperman will reflect local feeling. Advise him of your desire to schedule several advertisements. The first should not appear, however, until you can set forth the present and proposed rate schedule. The second advertisement might state the date on which the application will be filed and give reasons for the increase. A third might advise that the application has been filed and restate the reasons for filing. The fourth might give date and location of the public hearing.

Notice that so far your major efforts are undertaken before an application is filed. This is certainly contrary to the approach used by many companies who wait until after filing before trying to "sell" their customers. But you have a cogent reason for this advance activity.

The final section of Mr. Morrison's article will discuss: (1) Letters to subscribers; (2) handling the opposition; and (3) preparing for the hearing.

Electronic Communications

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Experiments Set Pattern For Earth-Based Communication System

EXPERIMENTS with a low-noise antenna and receiver combination represent another step along the way to transoceanic communication by reflections of electro-magnetic signals from passive earth satellites.

The combination has a lower noise temperature than any complete receiving system ever demonstrated. It measures noise generated in the atmosphere with a precision never before obtained.

Such a low-noise system could be used to extend the range or increase the bandwidth of telemetering equipment used for rocket probes into space.

A unique combination, the receiving system comprises a narrow-beam-width highly-directional horn-reflector antenna with low noise pickup from the surrounding terrain, coupled to a low-noise traveling wave maser that amplifies in one direction only. With the horn-reflector antenna pointed vertically skyward, over-all input temperatures as low as 17.6 degrees Kelvin (absolute scale) were observed at 5.65 kilomegacycles. This figure comprises the noise contribution of the sky, antenna, and master preamplifier.

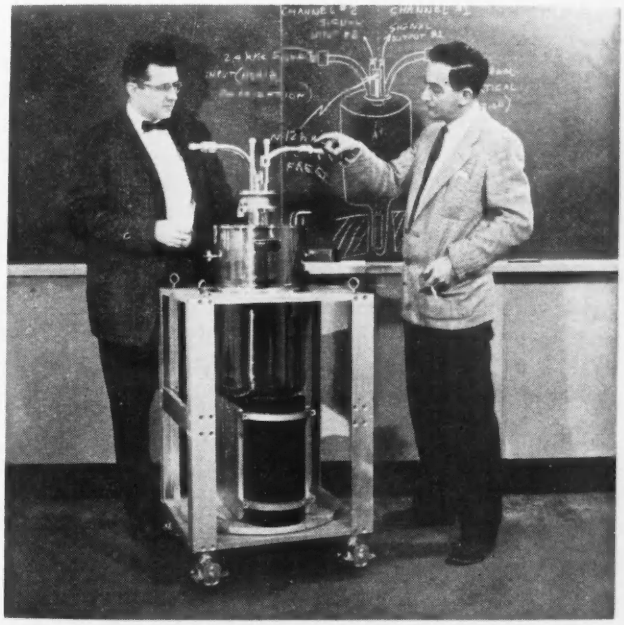
The horn-reflector antenna consists of a section of parabola fed by a retangular horn. It was developed originally by Bell Telephone Laboratories for the Bell System's transcontinental microwave relays.

Because of the unique design, the lowest frequency of operation is limited only by the size of the waveguide feed while the highest frequency is limited only by the mechanical precision of the parabolic surface.

In particular, the transcontinental radio relay antenna can simultaneously handle the vertical and horizontal polarizations of the 4,000-, 6,000-, and 11,000-megacycle radio relay system with a return loss which is greater than 46 decibels (VSWR less than 1.02).

The antenna used in the low noise experiment was similar in design but somewhat smaller and it had the following characteristics:

Over-all length — approximately 18 feet.



H. E. D. SCOVIL of Bell Telephone Laboratories points out to R. W. DeGRASSE an input coax of the lowest-frequency traveling wave maser ever built. Designed specifically for satellite communication, this packaged two-channel maser operates at a signal frequency of 2.4 kilomegacycles. When construction of a companion motor-driven horn-reflector antenna is completed atop Crawford Hill at Holmdel, N. J., the ruby-loaded two-channel maser will become part of a low-noise receiving system planned to amplify weak microwave signals relayed from a passive satellite sphere scheduled to orbit the earth.

Over-all height — approximately 6 feet.

Over-all width — approximately 8½ feet.

Radiating aperture — approximately 50 square feet.

Polarization — any.

Average half-power beamwidth — 1¾ degrees (at 5.65 kmc).

Antenna gain — 41 decibels (at 5.65 kmc).

The side lobes (except those adjacent to the main beam) — down about 55 db on the average from the main beam. The back lobes — down about 75 db on the average from the main beam.

Side and back lobe noise pickup (with beam pointed

vertically) — this was found to be 2 ± 1°K at 5.65 kmc. Note: This pickup is partially a function of local environment (trees, buildings, etc.) and could probably be reduced by proper landscaping and surfacing.

Copper loss — this loss, mostly in the antenna throat, adds another 1.5°K to the system temperature.

The traveling wave maser (TWM) used in the low-noise receiving system was developed at Bell Telephone Laboratories. It is the outgrowth of the pioneering effort that produced the first operating solid-state maser. With a bandwidth on the order of 30 megacycles, the TWM has sufficient gain to override the noise of a microwave cyrstal mixer. It is a two-part device designed to give unidirectional amplification — i.e., in the forward direction only.

Nonreciprocal reverse loss is obtained by using a ferrimagnetic material, polycrystalline yttrium iron garnet. Characteristics are as follows: —

Material — 0.05% Cr in Al_2O_3 (ruby).

Bandwidth — 30 megacycles.

Forward gain — 30 to 40 db.

Reverse loss — 40 plus decibels.

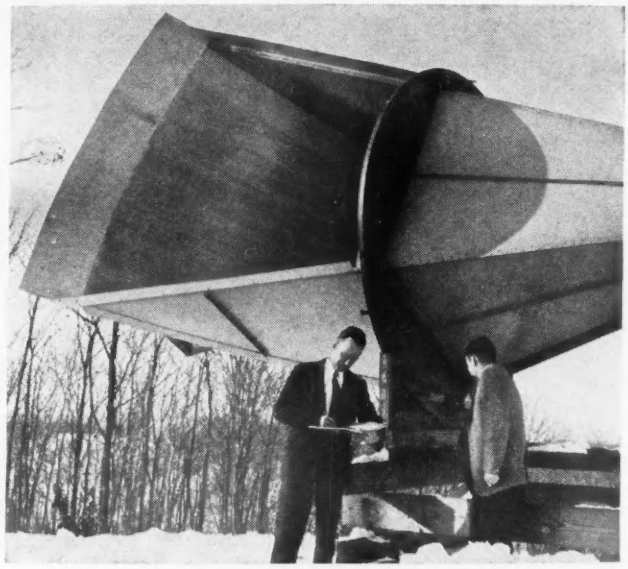
Signal — 5.65 kilomegacycles, tuneable over 230 megacycles.

Pump frequency — 18.5 to 18.9 kilomegacycles at 100 milliwatts.

Magnetic field strength — 4,000 gauss, approximately.

Improvements now under way indicate the feasibility of systems having an over-all noise temperature of 7.5 degrees Kelvin at 6 kilomegacycles, or of 5 degrees Kelvin at 2 kilomegacycles, for reception near the sky's zenith.

The ultimate sensitivity of an earth-based communication system is limited by the thermal noise generated in the earth's atmosphere. In the past, practical limits were imposed by the high inherent noise temperatures



D. C. HOGG records angle of experimental horn-reflector antenna read from calibrated scale by his associate E. A. OHM. The low-noise antenna comprises a section of a parabola with a radiating aperture of approximately 50 square feet, and picks up relatively little noise from the surrounding terrain. Having a gain of 41 decibels at 5.65 kilomegacycles, it is located atop Crawford Hill at Bell Telephone Laboratories' Holmdel, N. J. site.

of available microwave receivers and by noise picked up by antennas from the "hot" earth. This ultimate sensitivity may one day be realized, however, employing low-noise amplifiers in conjunction with antennas that do not pick up signals originating behind and to the sides.

Such devices could also extend the range of radio telescopes by a factor of ten in detecting radiation from hydrogen gas emitted from far distant galaxies. They could be useful in investigating interplanetary radio signals of all kinds, regardless of origin.

Based on measurements with the antenna pointed directly upward so that it intercepts a minimum of the

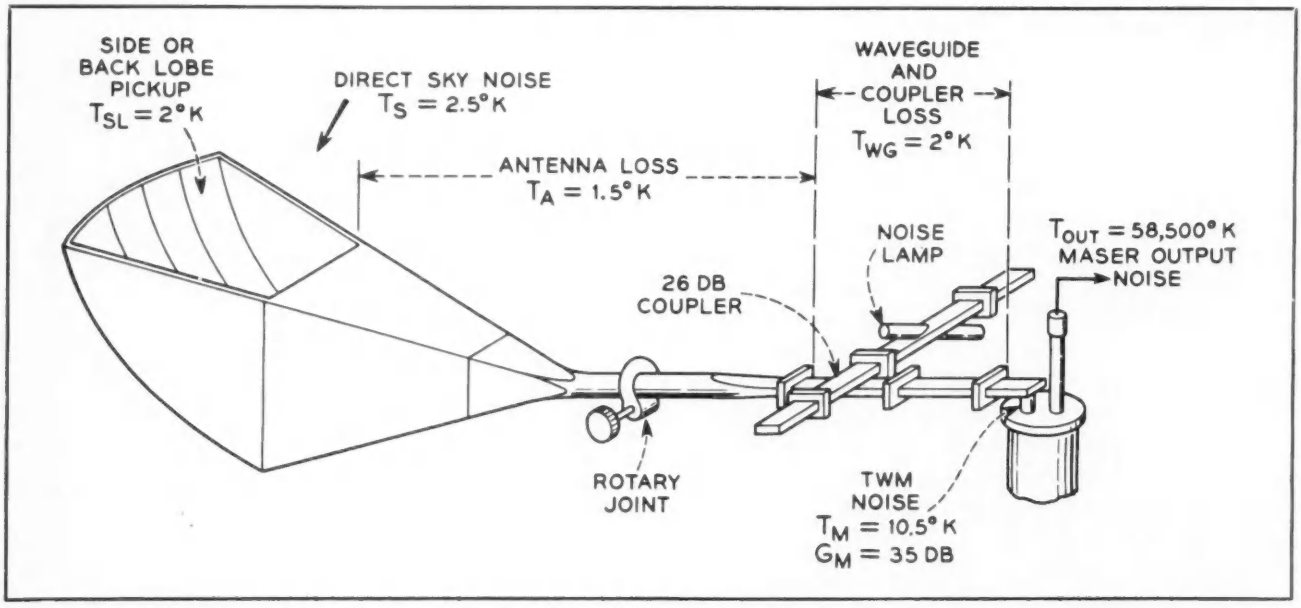


Diagram of test setup showing horn-reflector antenna, input waveguides, and connection of traveling wave maser. Various sources of input noise are also indicated. The low-noise antenna and microwave receiver combination is located atop Crawford Hill at Bell Telephone Laboratories' Holmdel, N. J. site.

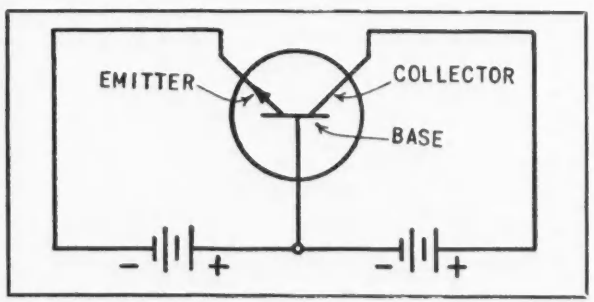
TELEPHONE ENGINEER & MANAGEMENT's

ELECTRONICS NOTEBOOK

By LEO G. SANDS

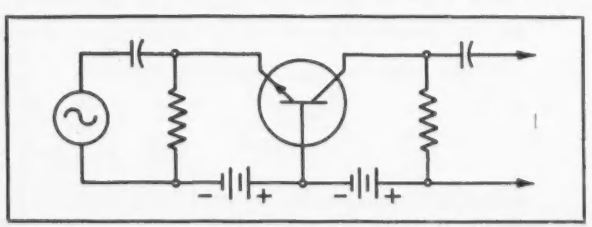
6.1-1 NPN TRANSISTOR (Cont'd)

Current thus flows through the junction of the emitter (E) and the base (B). Current also flows through the base and the collector because E_1 and E_2 are in series aiding and the negative *electrons* are attracted to the positive potential on the collector. The current through the base, however, is very small and most of the current flows through the collector.



6.1-2 GROUNDED BASE AMPLIFIER

A voltage gain is achieved because of impedance difference. The input impedance is very low while



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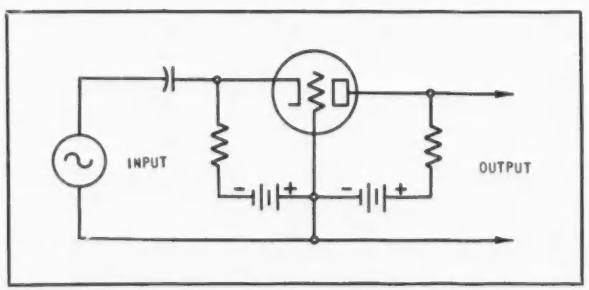
the output impedance is high. If the current that flows through the collector is 90% of the current leaving the emitter, and the current gain (0.9) is multiplied by the difference in impedances (say 100,000/100 ohms), the voltage gain will be

$$0.9 \times \frac{100{,}000}{100} = 0.9 \times 1000 = 900.$$



The above circuit is called a grounded base amplifier, comparable to the tube circuit shown here. There is no phase reversal. The circuit has a low impedance input and a high impedance output.

The "Electronics Notebook" is a regular feature of each issue of "Telephone Engineer & Management."

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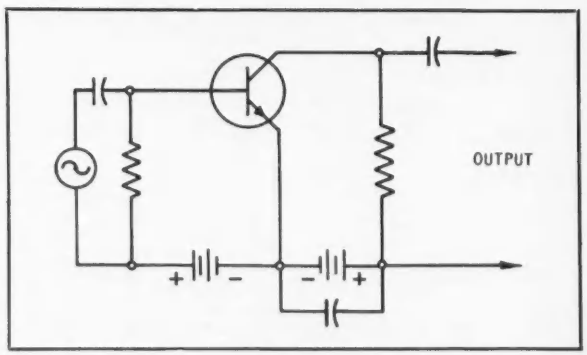
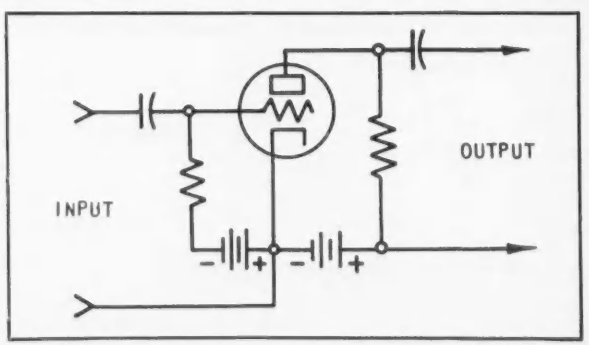
By LEO G. SANDS

6.1-3 GROUNDED EMITTER AMPLIFIER

The grounded emitter amplifier is comparable to a conventional tube-type amplifier. There is a 180° phase reversal between input and output. Input impedance is around 1000 ohms and output impedance is about 50,000 ohms or less. Voltage gain is about 500 but power gain is about 5000.





More Data For Your "Electronics Notebook" In The Next Issue.

earth's atmospheric envelope, the zenith sky temperature is about 2.5 degrees Kelvin at 6 kilomegacycles (2.5 ± 0.75 degrees K). Theoretical calculations confirm these measurements.

Electronics Building A Better Spousetrap

WE understand that a group of Illinois Bell Telephone Co. experts is working to perfect a device that every woman will want. It is called a subvocal interpreter. Translated, that means a dream analyzer to codify speech that cannot be heard in a sleeping person.

But the engineers and technicians, all members of a group called Service Activities of Volunteer Engineers (SAVE), are not thinking of the little woman as the equipment begins to emerge from the drawing boards. They envision the subvocal interpreter as a scientific instrument to help research men learn more of the workings of the mind while a person is asleep.

What the equipment is expected to do is to measure lip movements and vibrations of the vocal cords and translate them into symbols that can be interpreted as words. Thus, for the first time it will be possible to have a mechanized tool to analyze dreams.

G-E Announces 600-Channel Transistorized Multiplex Carrier

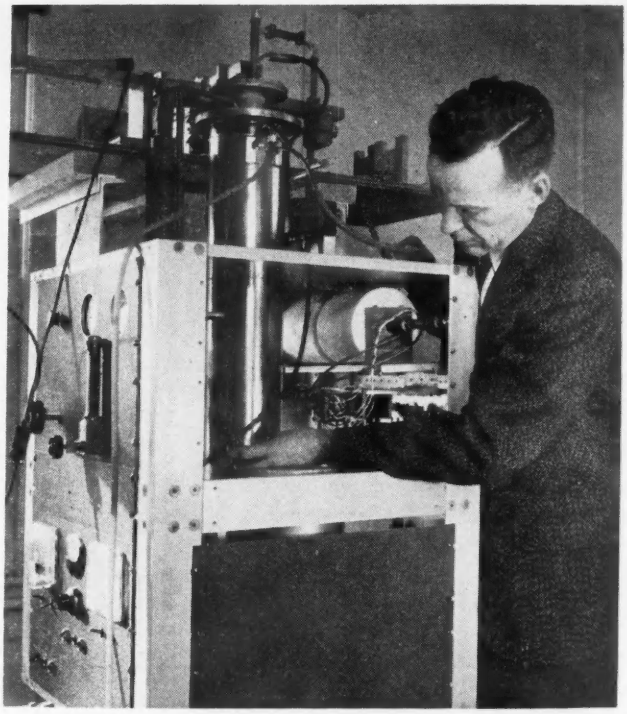
GENERAL ELECTRIC CO. has announced it has developed the world's first transistorized multiplex-carrier system capable of handling up to 600 voice frequency channels on a single radio beam.

According to the manufacturer the fully transistorized, single sideband suppressed carrier system has toll quality capable of meeting international and domestic long-distance standards, and will be of primary importance to telephone and wire line companies, but also will have substantial benefits for utilities, railroads, pipelines and other users of microwave systems.

The new multiplex-carrier uses a technique which utilizes a standby component for each component in the common equipment, such as amplifiers and master oscillators. Upon failure of an individual part, the parallel component keeps operating, with no switching delay to seriously affect data transmission.

Also achieved in the new G-E multiplex-carrier is a substantial reduction in power drain. The manufacturer explained that typical equipment currently available in the communications industry requires thousands of watts for a system utilizing 240 channels. General Electric's design takes less than 700 watts for the corresponding capacity. This results in savings on batteries, chargers, generators and power, which can be sizeable, for example, at remote microwave locations. It further contributes to longer life for other equipment housed at the same location which may be affected by tube heat.

Despite the increase in capacity, which makes 600 channels available in transistorized equipment for the first time, compactness is a feature of the new product. It is one-third the size of conventional tubed equipment, and the design makes possible 120 channels in an eight-foot rack space where only 24 channels previously could be used.



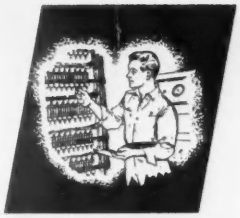
D. C. HOGG of Bell Telephone Laboratories adjusts pump power on traveling wave maser used in the experimental low noise measurements atop Crawford Hill at Holmdel, N. J. Pumping frequency is 18.5 to 18.9 kilomegacycles at 100 milliwatts, and signal frequency, 5.65 kilomegacycles. The ruby-loaded maser has a bandwidth on the order of 30 megacycles, and sufficient gain to override the noise of a microwave crystal mixer.

Flexibility Comes To Printed Circuits

THE CHARACTERISTIC of flexibility may now be added to the numerous advantages of printed circuit wiring. New *Flexprint*® wiring, manufactured by Sanders Associates, Inc., offers simplicity of design and cuts costs, while, at the same time, according to "Bakelite Review," it provides excellent electrical and mechanical properties, reduces wiring requirements, permits smaller lightweight assemblies, and minimizes costly and tedious hand labor.

Flexprint wiring is made by bonding thin copper conductors between insulating layers of flexible Krene sheeting. It is claimed the resulting flexible circuit greatly simplifies the design of electronic and electrical systems, since it can be easily routed through crowded layouts. Because of the flexibility of these new "printed circuits," assembly design is no longer determined by the circuit as in the case of rigid printed circuits.

According to Sanders Associates, Inc., the flexible "printed circuit" is ideal for diverse applications involving complex circuits, such as in computers, telephone and telegraph switchboards, relays, and industrial controls (where temperatures are below 120 deg. F. for continuous operation and 140 deg. F. for short time operation).



"SUB-HARMONICS and OVERTONES"

By C. D. EHINGER

"A Handy Set To Have Around"

The author reports on still another piece of test equipment added to the growing list of central office test gear — a pulse generator and measuring set. Someday this unit will be as much a part of the equipment room as the voltmeter is today.

SINCE THE beginning of this department in *Telephone Engineer and Management,* I have attempted to place a special emphasis on the importance of suitable test equipment in our central offices. I sincerely hope that it has not become repetitious to the point of boredom but incoming mail continues to indicate the great amount of interest which most telephone people have for suitable test equipment.

Evidently, a great number of readers agree with my thought that it makes no sense to spend hundreds of thousands of dollars for central office equipment and refuse to spend a few hundreds of dollars for test equipment which is necessary for the proper maintenance of this valuable equipment. It is also evident that many readers agree that it is unreasonable to expect adequate maintenance *over an extended period of time* unless proper and adequate test instruments and tools are provided.

As our circuits become more intricate, as our tolerances become smaller, and as our subscribers become more familiar with the optimum in service, the necessity for test gear which was not even in existence a few years ago is becoming more apparent. In the days of magneto and ring-down operation, our working tolerances in regard to relay operation were almost infinitely larger than the tolerances of today. In most cases, it mattered little whether a relay was "a leetle bit slow" in operating or releasing — since the only requirement was that it either operate or release.

In today's communications involving the telephone industry, with the transmission of signaling information, data transmission, and many other complicated pulses, it is vital that relays faithfully reproduce the information sent in at the transmitting end. This must be true regardless of the makeup of the burden-carrying medium — whether it be wire or any other facility.

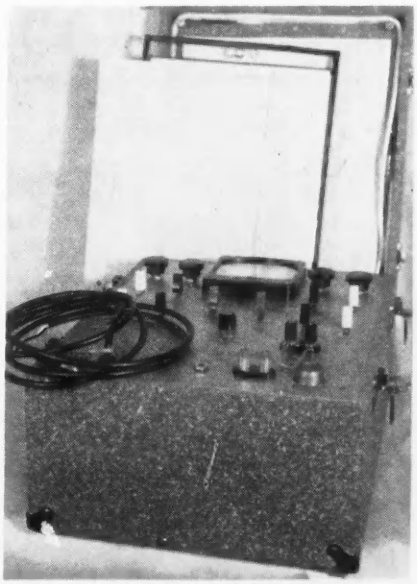


FIGURE ONE: — The Stromberg-Carlson No. 19 Measuring Set. The unit generates variable pulses and also provides means for measuring the speed and percent-make of its own product or pulses from other sources.

Relays are, generally speaking, binary units — whether they are forwarding pulses of battery, ground, or alternate battery and ground as in polar-duplex operation. Essentially, the information consists of "on or off" information which is the essence of binary operation. (See previous Sub-Harmonics and Overtone articles.) Accordingly, there are only two parameters involved in their operation — the speed, in pulses per second, and the percent of time, per pulse, when the relay is in the "make" or "break" condition.

Signal-Tracing

A METHOD called "Signal-tracing" has long been used in the electronics industry to locate and clear cases of trouble and to routinely test complicated pieces of gear. Briefly, the method involves insertion of a signal, of known characteristics, into the equipment under test and, by means of suitable equipment, checking each stage of the electronic gear to see how faithfully the known signal is being reproduced at each stage.

Such a method is ideally suited for the telephone industry from the standpoint of checking reproduction of pulses through the various stages of our telephone equipment. By producing pulses, at a variable and controlled rate of speed and percent-make, we can then insert these controlled pulses into any piece of telephone gear. The output can then be measured by the use of equipment which is capable of accurately measuring the speed and percent-make of the received pulses.

Until approximately a year ago, the difficulty lay in the fact that, to the best of my knowledge, no suitable

testing equipment was available in a price range that did not involve thousands of dollars. Within the last year, *Stromberg-Carlson* has made the No. 19 Measuring Set available to the industry. The set currently sells at a price under five hundred dollars.

At my request, *Fritz Haupt*, Advertising Manager of the *Telecommunication Division* of *Stromberg-Carlson*, sent one of the No. 19 Measuring Sets to the TE&M Lab for study and this report. The unit is shown in *Figure One*. General specifications are as follows:

Weight	28 lbs.
Size	12 x 14½ x 8 inches.
Power Requirements	49½ ± ½ volts d.c.

Pulse Generator

Speed range	6 — 25 pulses per second. In 2 ranges — 6 — 15 pulses per second. 15 — 25 pulses per second.
Percent range	10% — 90%. In 2 ranges — 10% — 50%; 50% — 90%.

Output pulses are suitable for any circuit that may receive loop, ground, polar-duplex, or carrier pulses. Synchronization equipment is arranged to insure against output of a partial pulse. Desired output pulses may be sent over the tip, ring, or sleeve of the "pulse-out" jack.

Pulse Measuring

Speed range	6 — 25 pulses per second.
Percent range	10% — 90%.

Unit will receive loop, ground, polar-duplex, or carrier pulses. Input pulses may be on either tip or sleeve of the "pulsing in" jack or may be applied to the "pulser in" binding post.

Additional features:

Compensation can be applied when the pulsing in source has a magnet in parallel.

A jack is provided for connection of out-pulses to an equipment routiner.

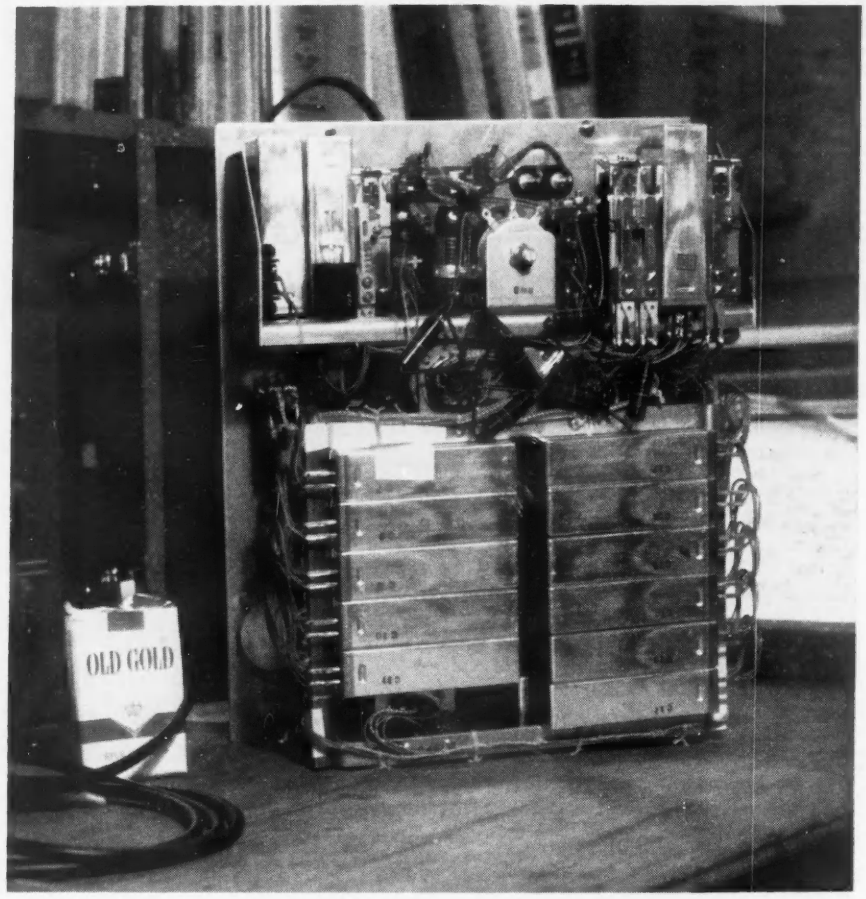


FIGURE TWO: — A view of the rear of the instrument when removed from the carrying case. A large number of components have been tightly packaged. The mounting provides a very solid and rigid unit.

"A Lot In a Small Space"

THE EQUIPMENT was received and checked by the *TE&M Lab*. *Figure Two* shows a rear view of the instrument after removal from its case. Although not too apparent in the photograph, a large amount of equipment has been compressed into a small amount of space. All units have been securely mounted and construction throughout is quite rigid and solid. No limitation on portability is apparent and it appears that the meter, itself, is the limiting factor in regard to roughness of handling.

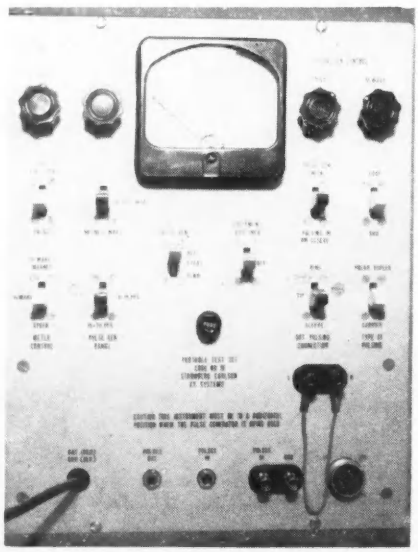


FIGURE THREE: — Panel face of the No. 19 Measuring Set. Keys and controls for the Pulse Generator section are on the right and on the left for the Pulse Measuring section.

Figure Three shows a view of the face of the instrument and shows the various controls and switch keys. Because of lighting conditions when the photo was taken, the meter face cannot be clearly seen; however, the scales are large and easily read with percent-make scale at the top; speed scale, in pulses per second, below.

Various test cords and clips, plus battery connection cord, are furnished as a part of the instrument and stow away inside the unit when the removable cover is fastened down by the four compression-type hasps and snaps.

The unit is easily and quickly made

ready for service. Battery and ground connections are of the alligator test-clip type and test cords are quickly and easily attached, although it is suggested that most technicians will prefer to change the test cords to "banana plug" ends rather than the "pin type" ends furnished.

Output of the generator is easily set by the use of proper keys. Speed and percent-make of the output are varied by knob-type controls and these variables are easily checked by connection of the pulse generator to the meter. When the desired speed and percent-make of the output have been set, the output can then be sent to the equipment under test and the functioning of the questionable equipment can, in turn, be read on the meter.

No checks as to speed and percent-make accuracy of the unit were made by the *TE&M Lab.*

Complete and detailed circuit descriptions, schematics, and operating charts are also included as a part of the unit.

Applications of the unit are many and versatile. Not only can it be used for the checking of the ordinary dial, whether for repair or as part of complete telephone instrument checking, but it is also quite applicable to checking of complete switch trains through the equipment room.

In the case of toll circuits, the ideal application would be the use of two units. In such cases, pulses can be sent from the distant end and checked at the receiving end, and the procedure then reversed in a manner quite similar to ordinary transmission testing.

By this method, it is a simple matter to determine whether the received pulse accurately reflects the original pulse as to speed and percent-make. In event of excessive pulse distortion, it is usual to "back-track" the circuit to determine which component or unit is causing the distortion. Adjustments and measurements can then be made, at the spot, to clear the trouble.

It would appear that, in coming years, this unit, or similar units, will be as much a part of the ordinary telephone equipment room as the usual volt-ohm meter is today. — *C. D. Ehinger.*

"THE FANTASTIC FUTURE"

AS FANTASTIC as this may seem, Person to Person Direct Dialing is needed if we are to keep pace with the fast development in Florida. We feel that such new DDD advances will not create any large displacement of operators, but will just enable us to keep abreast of the larger demands for other operator assistance type calls.

The Long Distance situation now is much the same as when the telephone industry started automatic dial conversions of local exchanges. If the industry hadn't undertaken such technological progress, there wouldn't be much calling today. Remember, it is a proven fact that if the telephone industry had to depend on the old manually operated systems instead of dial telephones, there would not be enough women between the ages of 18 and 45 in the entire country to perform the job now required by telephone traffic!

Some of us are already facing force provision problems and we feel that Person to Person Dialing will be one of the answers to this situation. In addition, it is our desire that our customers dial and complete their Station and Person Long Distance calls as easily as they now do locally. In this endeavor, our Traffic Departments will play a large part in the future.

Can you imagine that in the not too distant future, our average customer will be personally issued a 10 digit telephone number at birth? Later, he will be given a little black box that he can carry in his pocket. It will be no bigger than a cigarette case and on one side it will have 10 buttons similar to a key sender. On the other side will be a miniature television screen. There will be no wires attached. He will be able to dial direct to any person on earth and he will be able to see that person in 3-D and color by turning the little black box over. If the called person doesn't answer, we can be sure that he has either gone on to his reward, or is perhaps on another planet. And I am informed that the Industry's engineers are already contemplating DDD communication with outer space. As the saying goes — We haven't seen anything yet! — *D. T. Shearer, general commercial and traffic superintendent, Inter-County Telephone & Telegraph Co., Fort Myers, Fla.*, at 1959 convention of the Florida Telephone Association.

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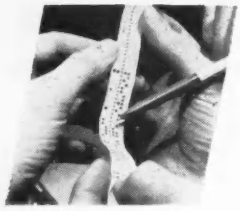
Any comments, criticisms, or suggestions for future topics? Address all correspondence to "Sub-Harmonics and Overtones," Telephone Engineer & Management, 7720 Sheridan Road, Chicago 26, Ill.

Manufacturer's Comments:

A companion test set known as the No. 20 Portable Equipment Routiner provides means for checking switching equipment by calling a pre-determined number in a connection group from a pre-selected line in a linefinder group. This test number is automatically "dialed" repeatedly taking random paths through the switching equipment. In the event of a failure the routiner stops and sounds an alarm so that the call may be traced. The pulses used to drive this set are supplied by the No. 19 Measuring Set.

The binding posts of the No. 19 Measuring Set are designed for use with test cords having either banana plug or pin type ends. We supply the pin type since we feel that a tighter connection can be had to the test set as it is possible to tighten the binding posts on a pin type. If banana plugs are used there is more danger that a slight pull on the cord will disconnect it from the test set.



"TRAFFIC LIGHTS" by D. A. PERIGO

Mark Sensing of Toll Tickets – Part II

The real test of the value of "Mark Sensing" is its effect on company earnings. There may be some over-all savings for companies with large revenue accounting centers — but are other companies increasing their costs to make the large company savings possible?

IN A TWO PART article, such as this, we advise a review of what was said in the first part in order to have an up-to-date understanding of what is to follow. (See "*Telephone Engineer & Management*," 4-15-60.)

There are many Independent companies that depend on a larger company (Bell or Independent) to ticket their toll traffic. If the toll center company uses automatic ticketing or mark sensing it creates problems for the smaller company. The first problem is that of being able to read the tickets received. Tickets that may be perfectly clear to a machine may be very difficult for the human eye. No detail is required here because those who receive such tickets recognize the problem.

The second problem concerns the billing process. Where small companies use the microfilm method and mail the tickets to the subscriber there are some considerations in postage. Another problem is that of storage (where microfilming is not used). It seems obvious that more space is required for the mark sensed tickets because they are cards instead of slips of paper.

Every company receives collect tickets that must go into the billing process, so even when its own toll center is not mark sensing it still must contend with the problem. We know this item is of concern, even within the Bell System. We recognize that it becomes less of a system problem as more conversions to mark sensing are made. The fellow who has our greatest sympathy, however, is the Revenue Accountant in the last Bell System accounting center to convert to mark sensing.

Where Independent companies are on a Cost basis of settlement it would seem that any additional costs of billing would be taken care of through the settlement procedures. In companies where settlements are made on the Cents per Message basis it may be that additional costs are forced on them because of another company's use of mark sensing. We believe such costs should be recoverable. An alternative, of course, would be to insist on transcribing the billing information to the paper ticket before sending to the Independent. (We have been told that as early as 1947 an Independent company proposed to use mark sensing but its collect tickets to other companies were demanded on a conventional toll ticket.)

Mark sensing is not required to mechanize the accounting process. Several companies are saving money in the accounting center by manually punching the ticket details into the tabulating cards and letting the machines take over at that point. This method eliminates the costly manual sorting process. It takes *volume* to prove in any mechanized process.

In the April 15, 1960 issue of *Telephone Engineer & Management* we mentioned Traffic loads and costs, promising to say more about them.

Since Bell System coefficient tables provide an additive amount for mark sensing the called number, we believe the question of whether it takes longer to mark sense is answered. If it takes longer for the called number it seems reasonable to assume that it also takes longer for the calling number. This is not given a value, however, because it is theoretically done as an overlap in what would otherwise be idle time. If the customer happens to give the calling number first, instead of when the operator asks for it, there is about a five second (0.3 unit) penalty against the operator.

Let's take a look at what really happens. We will use the minimum and maximum coefficient credits for Initial attempts in these examples and the usual 230 units per operator hour. The coefficients used are from the August 1957 supplement of the *Bell System Outward Toll Coefficients.*

Example One: —

Assume the operator handles nothing but key pulsed station calls of less than 30 miles for one hour.

Regular coefficient	3.2
Mark sense coefficient	3.5
230 units ÷ 3.2 = 71.9 calls	
230 units ÷ 3.5 = 65.7 calls	
65.7 ÷ 71.9 = 91.4%	

Example Two: —

Assume the operator handles nothing but key pulsed long distance person calls for one hour.

Regular coefficient	13.9
Mark sense coefficient	14.2

230 units ÷ 13.9 = 16.5 calls
230 units ÷ 14.2 = 16.2 calls
16.2 ÷ 16.5 = 98.2%

By taking the minimum and maximum coefficients for a particular office we believe these figures demonstrate that with mark sensing the operator efficiency is from 1.8 to 8.6% less than it is with the use of the conventional toll ticket. It is obvious that any normal toll center has more of its traffic in the first example than in the second — so its loss in efficiency would, therefore, be closer to the 8.6% than to the 1.8%. This means that if there were no coefficient change an office which was carrying an average weekday board load of 190 before mark sensing would carry a load of from 174 to 186 after mark sensing. In short, loads have been maintained by the simple expedient of changing the unit value of the call. Thus the additional work time does not distort either the load or the cost per thousand units — *but it does cost more money in Traffic wages.*

If you have made a cost study on the basis of the additive coefficient we suggest you go back and study how many tickets you can handle per operator hour. In *Example* 1 we find the difference is six calls an hour.

We are sure that no arithmetic is necessary to prove that if the above is true of operator time it is equally true of the position requirements — so this also has its effect on the investment and its carrying charges.

We expressly stated our examples in terms of 1957 coefficients because they are *less unfavorable* to mark sensing than are the revised coefficients which are expected to be in Bell System use on October 1, 1960. Since the new coefficients will be lower, the reduction in efficiency with mark sensing as shown in *Examples* 1 and 2 will be correspondingly greater.

We have been aware for some time that coefficients had not been changed to properly reflect the changes in the Traffic Operating Practices — and the loads of all offices have been overstated as a result. This has made it much easier to "prove in" mark sensing on a theoretical basis.

The real test of the value is "What is its effect on your earnings?"

In spite of the items pointed out in this article we do not doubt but what there may be some over-all savings for companies with very large volume revenue accounting centers. On the other hand we feel that such savings must stand on their own without demanding that other companies lose money in order to make the large company savings possible — *D. A. Perigo.*

Applications By Phone

RECENT INNOVATION for Florida General is taking service applications by telephone . . . a procedure which we shied away from for years on the grounds that there was no substitute for face-to-face contact with a new applicant, particularly for credit determination purposes and to assure listing accuracy.

We are certain that our customers like the new arrangement . . . they have so expressed themselves. We are equally certain we can offer them better service and handle service arrangements with them more economically and just as effectively in a telephone contact. There is also reason to believe that an applicant is more receptive to our representatives' sales efforts for colored sets, extensions and other supplemental services in a telephoned application than when he has been required to make a trip to our business office.

While our experience with this practice is limited yet, no evidence has developed so far to indicate that an equally good job of obtaining the credit information we need and of requiring a deposit if the facts . . . or lack of them . . . disclose such a need cannot be handled by telephone. Confirming letters are used to insure listing accuracy. — *N. M. Shenk, commercial manager, General Telephone Co. of Florida, Tampa, at 1959 convention of the Florida Telephone Association.*

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FAST CUTTING
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HEAVY DUTY

Designed and manufactured with utility line clearing in mind. Rugged, heavy duty tools that are famous for their fast, easy cutting action.

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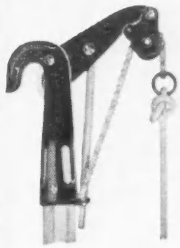


No. 11
A strong, durable, easy cutting pruner head that cuts up to 1" branches with ease. Open stock spruce extension poles in 6 foot sections, with telescoping aluminum joints.

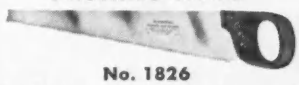
No. 12
Cuts up to 1½" branches. Pruner head is malleable iron casting, husky, unbreakable. Smooth, easy cutting action.

LOPPING SHEARS
Heavy duty, fast, easy cutting loppers designed for utility use.

No. 75
Compound lever cutting action, smoothly slices through 1¾" to 2" branches.

Nos. 525, 530
The famous "Tiffany" pattern lopping shears 25" and 30" models. Cut branches up to 1¾".

PRUNING SAWS



No. 1826
26" blade of Sandvik Swedish steel especially designed for tree work. For those spots where a chain saw can't operate.

Send for literature and additional information on pruning tools of all types.

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Quality Tools
SEYMOUR SMITH
Since 1850

Sales Representative
JOHN H. GRAHAM & CO. INC.
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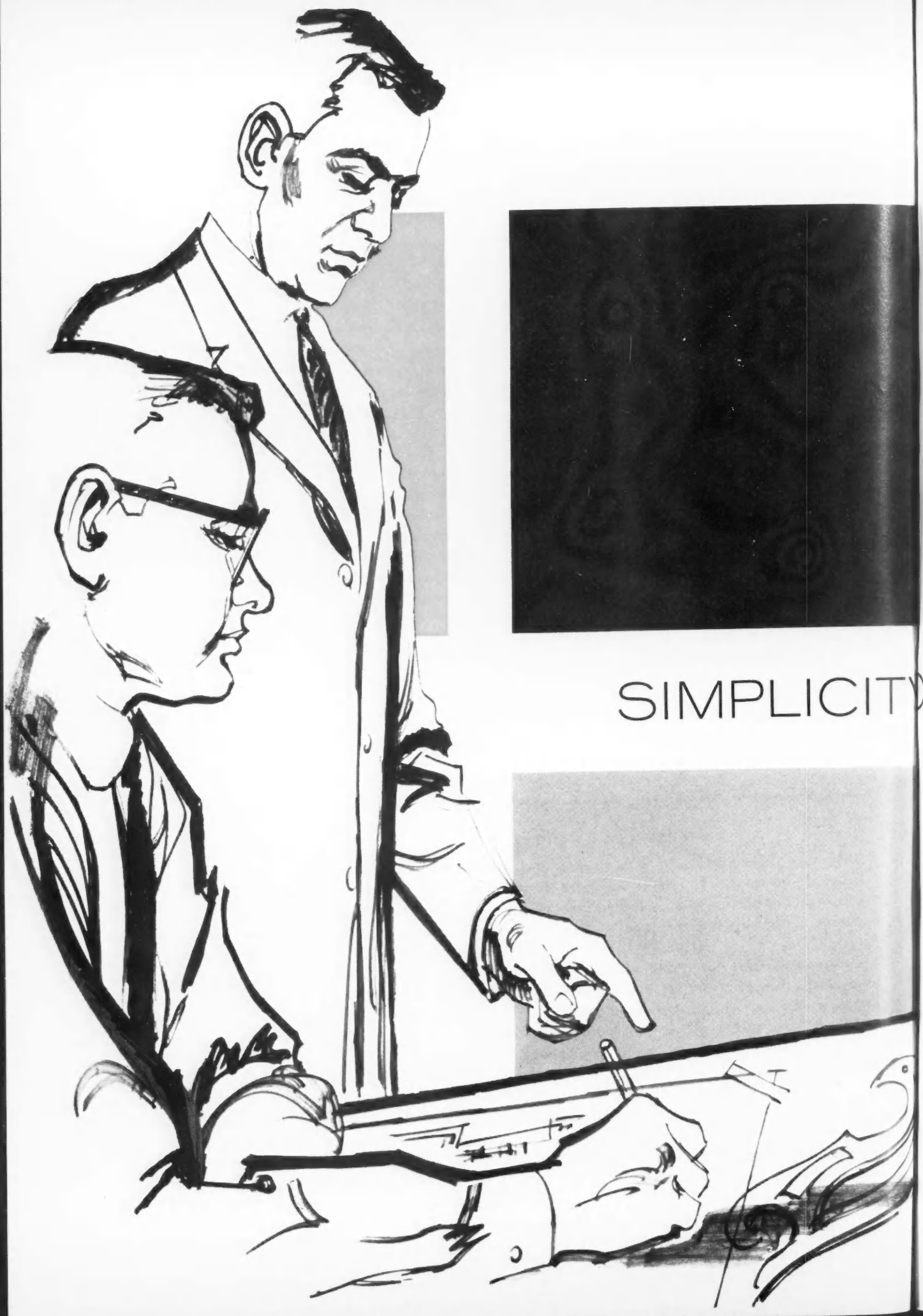
SIMPLICITY OF

When purchasing dial switching equipment, the experienced buyer looks for the product that offers *minimum maintenance.* That's why so many telephone men choose Strowger Automatic. You see, Strowger operates on a step-by-step principle and is made with the simplest possible construction. This keeps adjustments and repairs to a minimum. The position of the switching components permits visual tracing of circuit operation. This speeds training of personnel and makes trouble-shooting quick and easy.

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another reason why telephone men choose Strowger!

PROVE IT FOR YOURSELF! Visit a Strowger Automatic exchange. You'll see that Strowger offers unsurpassed simplicity in design. You'll also see the craftsmanship and quality construction of this famous equipment. Then get in touch with us. We'll be glad to help you plan for your dial conversion. Write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

AUTOMATIC ELECTRIC GENERAL SYSTEM

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GENERAL TELEPHONE & ELECTRONICS

COMMERCIAL DEPARTMENT NOTES
By ALLAN R. STACEY

Ideas From The "Lone Star State"

Our author journeyed to Texas, spoke at the convention, picked up some workable ideas from Bill Reichel, Dave Gardner, Jr., Dink Robb, and learned about a "telephone-on-the-door," and a "dial-a-prayer" service plan.

JUST BEFORE Christmas last year my morning mail included a letter from *Jack Haley*, the energetic executive secretary of the *Texas Telephone Association*. The letter contained an invitation to be one of the speakers at the March 1960 convention. As a result I found myself aboard a jet airliner on March 6th enroute to Dallas, Texas.

These Texans are a lively bunch of telephone people. The association includes more than 300 companies as members and when they all get together there is a lot to be gained through interchange of ideas. I picked up a few pointers myself.

Wake-Up Service

BILL REICHEL of the *Mid-Texas Company* told me that he had recently inaugurated a wake-up service. His regular switchboard operators provide the service and, at present, they are making about 60 wake-up calls in a two-hour period in the morning. They do this through use of an operator check sheet rather than a signal clock. The charge to the customer is $3. per month for this service. I forgot to ask Bill what happens when the operator has to call three times to get a sleepy-head out of bed.

Dial A Prayer

SEVERAL telephone companies across the country have been using an electronic answering machine for supplying a prayer of the day or a prayer of the week. Usually the equipment is used by a local church on a tariff basis.

I understand that in some instances, where one church alone has not been able to afford the monthly rental, several churches in the community go together and take turns recording the prayer upon the machine and also share the rental charges.

You might be interested in the experience of one of the Texas telephone companies that provided this machine without charge for use as a dial a prayer. Initially, the company had its own name recorded on the end of the message as a "signature." This was because the equipment was being donated. However, in view of some slight public reaction, it was decided to drop the name of the telephone company. In this case, a hundred and twenty calls per day were handled by the machine. In other communities the usage has been both more and less.

Telephone On The Door

I NOTICED with interest in the Baker Hotel in Dallas that the American Airlines ticket office had a simple arrangement whereby you could inquire about your tickets after closing hours of that particular office. The ticket office had a glass door with a large metal push-bar upon it. Just inside the office down at the floor baseboard was a telephone jack.

When closing the office for the day, the airlines clerk would plug into the jack a wall handset telephone, run the cord underneath the door and bring it up outside to reach a wall handset instrument which was mounted with a thumbscrew type holder onto the large handle of the door. Affixed to the colored wall handset instrument was a little sign which said, "For American Airlines Reservations and Information Dial 80." It looked like a good way for a telephone company to gain an extension.

How Many Key System Installations Do You Have?

DAVE GARDNER, Jr. of the *Nocona Telephone Co.* and current president of the Texas Telephone Association was bragging to me in good Texas fashion. He stated that his company had 2,100 stations and 42 key system installations. This sounds mighty good — it amounts to two key systems per one hundred stations. I'd be interested to know whether any of you can beat this number of key system installations per hundred stations. Write and let me know if you can because we don't want Texas to come off number one without a little competition.

Telephone Answering Service

DINK ROBB of the *Electra Telephone Co.* wanted to know a little more about telephone answering bureaus operated by telephone companies. I told him that two companies in California were operating full-fledged telephone answering bureaus

and that several other companies were providing some of the services offered by telephone answering bureaus.

I told him, for example, of the remarks of *John McHenry* of the *Capital City Telephone Co.*, Jefferson City, Mo., to the effect that they were providing answering service for certain subscribers at $10.00 per month. Other company rates vary all the way up to $21.00 per month. (For further discussion on telephone answering service, see this column in TEM of October 1, 1959.) In the event that any of you readers are interested, I would be glad to direct you toward further information regarding telephone companies providing answering bureau service.

Pioneers

HAVING just recently become a member, myself, of the *Independent Telephone Pioneer Association*, I attended with interest the luncheon of the Texas Chapter of the Independent association. I can truthfully report to you that, although the Texas Pioneers collectively aggregate many years of service to our industry, they are not in any respect "old" telephone people. They look like a mighty useful group to me and one which will work vigorously to preserve the history, traditions and ideals of our telephone family.

Well, enough about Texas for now.

Plastic Directory Covers

WE ARE still receiving mail regarding the February 15th issue which discussed plastic directory covers. *Roy A. Peterson* of the *West Coast Telephone Co.* sent me a thought-provoking letter. He comments, "This problem is becoming serious enough to warrant positive action. I have been thinking about another solution. Briefly, my idea is this. Why don't we go back to the old plan of selling directory advertising on the front and back covers of our directories and, at the same time, make up our books with a good quality plasticized cover."

Maybe Mr. Peterson has something here. He goes on to say, "This will do two things: (a) it will provide our customers with a directory with a good durable cover making the foreign covers completely unnecessary and (b) will give us the revenue that is rightfully ours from directory cover advertising. The cost of the higher quality covers should be more than offset by the additional revenue."

Personally, I have been a part of this struggle over the past decade to remove all advertising from the outside of our telephone books. But Mr. Peterson reached home with me on one point. He said, "We have felt for a number of years that the production of a directory with a beautiful picture on the cover is an aid to customer relations. However, it is rather a revelation to find that our customers are placing unattractive covers over these pictures."

It is a revelation, isn't it?

Next issue we'll talk about one of the newer facets of our business — the regional telephone directory. See you then. — *Allan R. Stacey.*

Printed Circuit Bulletin

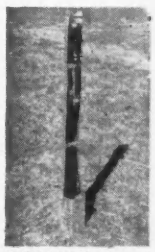
A NEW two-color bulletin on printed circuits has been issued recently by Whitney Blake Company. The folder discusses the benefits from the use of printed circuits and provides a list of information needed by the manufacturer when quotations are to be made.

In addition, types of insulating materials and the current capacity in relation to width of copper conductive pattern are described. The folder also lists the choice of metals available for the conductive pattern as well as the types of plating recommended to achieve desired results. Recommendations covering materials available for switch and contact patterns are also included.

Copies of this Printed Circuit Bulletin 1159 are available without charge. Write *James M. Fisher, Assistant Advertising Manager, Whitney Blake Co., Dept. TE&M, New Haven* 14, *Connecticut.*

SUPERIOR
WIRE OR CABLE
Terminal
PEDESTALS

B 800 Cable Terminal Pedestal



B 700 W Pedestal

B 700 W Pedestal

B 900 Pedestal

for
OUTSIDE
BURIED PLANT

Made especially for construction where buried plant facilities are employed. Superior Pedestals are available in three basic terminal pedestal designs.

For a single buried wire or for a cable as large as 400-pairs, Superior Pedestals provide a quick and simple method of installation . . . puts your outside buried plant in service without delay!

The pedestals, made of heavy steel, hot-dipped galvanized **after** fabrication, are supplied complete with all mounting hardware, terminal support brackets and grounding lug.

For easy installation and positive all-weather protection of outside buried plant terminals, order Superior terminal Pedestals.

4481

Write for complete information to

SUPERIOR
CABLE CORPORATION
Hickory, North Carolina

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10
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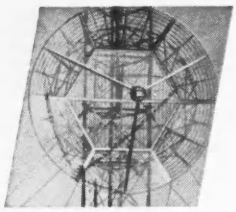
DEF 3
ABC 2
PUSH
GHI 4
1
JKL 5
MAin 0-2368
MNO 6
PRS 7
Z OPERATOR 0
TUV 8
WXY 9
PUBLIC PHONES REALLY GET AROUND!
We want *news* about them to get around, too.
That's why, in a long list of national magazines, we're running an advertisement about public phones this month.
It has a twofold purpose.
It seeks to stimulate calling from public phones for a variety of reasons not connected with emergencies.
And it seeks to make folks throughout the country aware of the value of having public phones near at hand, wherever they may be. For that is a vital element of the over-all value of the services offered by the telephone industry.
BELL TELEPHONE SYSTEM

PHONE
FROM
CAR
TELEPHONE
TELEPHONE



PLANT ENGINEERING NOTES
By JOHN S. REED

Telescriber Aids Plant Department

Telescriber equipment used by Pacific Tel. & Tel. Co. makes possible the transmission of handwritten messages between the Commercial Department and the Plant Service Center, and between the Plant Service Center and the central office.

HANDWRITTEN messages — transmitted by wire — show an encouraging potential for internal service controls among telephone companies, according to comprehensive tests within several exchanges in the Northern California Area of Pacific Telephone & Telegraph Co. This Area has been using TelAutograph Corporation telescriber equipment for medium-volume internal message traffic since the middle of 1957.

This equipment operates over standard voice lines. It makes possible the transmission of handwritten messages instantly and dependably. Within a telephone company service operation, its chief advantage is that messages can be received while instruments are unattended. All messages are written and audited at the source, eliminating any possibility of transcription errors within the service operation. In the exchange in which the TelAutograph equipment was initially tested, savings were approximately six hours per day of clerical time — more than enough to justify the equipment.

These systems have proven useful in two separate situations within the Pacific Telephone Area: (1) for message traffic between the Commercial Department and the Plant Service Center; and (2) for traffic between the Plant Service Center and central office frames.

In both situations, the telescriber message systems appear to work equally well within the average size metropolitan exchange. Under Pacific Telephone's practice, it is common to set up Plant Service Centers to handle approximately 60,000 stations. Since the region served by Pacific Telephone is made up largely of growth areas, internal message traffic involving service to the customer — particularly orders to connect and disconnect service — is high.

Under the operating setup within the Pacific Telephone System, the Plant Service Center has several service functions. Among them are: (1) operating test switchboards for its service area; and (2) controlling service and repair activities and dispatching installers and repairmen.

In the exchange where the TelAutograph system was first tested, average traffic between the Commercial Office and the Plant Service Center was running about 80 to 100 calls per day and the traffic was sufficient to interrupt normal operations when it was handled on the regular telephone lines.

With a limited number of lines available between the Commercial Office and the Plant Service Center, commercial representatives were frequently getting busy signals when they tried to transmit service messages. These situations were time consuming. They could also be irritating on occasions when a commercial rep-

Installation order received at Pacific Tel. & Tel. Co. service center is relayed to frames via telescriber.

resentative had a customer waiting at her desk or on another line and needed information from the Plant Service Center.

Studies showed that most of the messages from the Commercial Offices to the Plant Service Center were routine in nature. It was desirable to transmit them as quickly as possible, but conversation was not necessary. The telescriber system makes it possible to transmit the information without interrupting work operations. It ties up only one person. And it leaves the telephone lines free for those instances where they are needed.

Installation of the telescriber system has not affected the normal routine for the commercial representatives. As always, customer service requests are noted on a padded Contact Memo form. In the cases where the information can simply be transmitted to the Plant Service Center without requiring an answer, these forms are placed in racks for pickup by the representative assigned to operate the TelAutograph machine. Normally, messages are transmitted about every 15 minutes.

The TelAutograph systems in use within Pacific Telephone are set up for two-way traffic, and the instruments at either end can send or receive data. Automatic switching devices make it possible for only one person at a time to transmit messages — preventing any possibility of garbling. No attendant need be present at the receiving end. A party wishing to send a message merely picks up a pen-like stylus, presses a button activating the machine, and begins writing.

At both ends, messages are written on continuous marginally-punched Instan-Forms. These forms are 5½ x 7½", designed so entries are made in convenient form for both commercial and plant. They were readily integrated into regular operating procedures.

At the Plant Service Center, the big advantage is that technicians and clerks no longer must drop what they are doing to receive messages. They can tell when traffic is coming over the TelAutograph units, but can finish what they are doing and handle the new work more efficiently. The fact that messages are transmitted in written form also helps pinpoint responsibility in the processing of service calls.

At the plant, technician tears off work order from receiving telescriber unit.

TelAutograph Instan-Forms are incorporated into regular work schedule procedure at telephone plant.

The following are typical types of messages moving each way:

From Commercial Office to Plant: Information for longhand corrections of existing service orders; changes in "Due Date," "Access," etc.; requests to verify equipment, etc.; requests for facility information — when immediate reply is not needed; requests for foreman or installer to call the business office; and replies to inquiries and requests from the Plant Service Center.

From Plant Service Center to Commercial Office: Information for written correction orders; requests to issue "Work Completed" orders in cases where a serviceman completes a job at the direct request of a sub-

TELEPHONE ENGINEER & MANAGEMENT's

PLANT MAN'S 'SPEC' BOOK

(1) Cable Pressurization Procedures — Installing Pressure Plugs, Contactors, and Valves

General

The successful operation of a cable pressurizing system depends on the maintenance of the dry air pressure within the cable. Means of supervising the system are needed to make sure of adequate pressure within limits. In general, these means consist of damming or blocking the cables at specific points and cable terminal stubs when necessary, placing contactors (gas pressure switches), and installing pressure testing valves on the cables.

Pressure plugs are dams in the cable which separate the cable into pressurizing sections. They are also used to seal off cable laterals that are not to be pressurized and terminals that are not gas tight.

Pressure plugs with by-pass connection and shut-off valve are also employed to isolate an aerial cable section from an underground cable section. They prevent interference of temperature variations between the aerial and underground cable sections with the determination of leak locations. The shut-off valves are closed only when it is desired to.

Contactors provide means for closing an alarm circuit when the pressure within the cable falls to a critical level. They are pressure operated switches which are set to operate at a minimum pressure point.

One type of contactor operates to short circuit a cable pair and, in this manner, sets off an alarm in the central office. If more than one contactor is connected to the same pair, the loop resistance is measured to determine the location of the operated contactor.

TELEPHONE ENGINEER & MANAGEMENT's

PLANT MAN'S 'SPEC' BOOK

(2) Cable Pressurization Procedures — Installing Pressure Plugs, Contactors, and Valves

Contactors equipped with additional terminals may be employed to provide a talking pair for the cable splicer.

Another type of contactor is designed to connect a high resistance across a regular working pair when the pressure in the cable drops to a critical value. An operated contactor is detected by voltmeter tests made at regular intervals on the working pairs assigned for use with contactors. This type of pressure switch does away with the need to assign cable pairs exclusively for the alarm circuits. The high resistance shunted across the pair does not interfere with the use of the line by the telephone subscriber.

The locations of contactors are recorded on subscriber cards in the office by a code number which designates the location on a cable plat.

Pressure testing valves are installed to provide a means for taking average pressure readings and determining rate of pressure drop, making measurements to locate leaks, and checking the operation of pressure plugs and contactors. These valves are generally installed at each contactor location, on each side of intermediate plugs, on the pressure side of plugs at the end of pressurizing sections, and at intervals of 3000 feet throughout the pressurizing section. (These spacings may be reduced for better accessibility or for other reasons.)

The pressure testing valves may also be employed to boost low pressure in a cable with nitrogen from a cylinder in an emergency. Such valves may be located at other than the specified points in a cable lead for this purpose.

TELEPHONE ENGINEER & MANAGEMENT's

PLANT MAN'S 'SPEC' BOOK

(3) Cable Pressurization Procedures — Installing Pressure Plugs, Contactors, and Valves

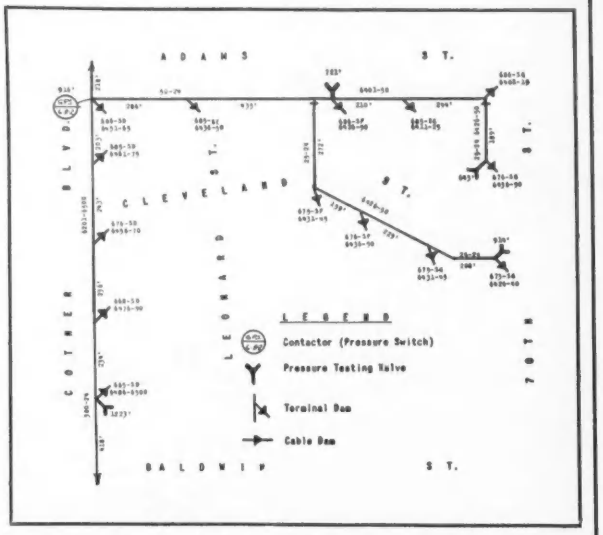


Figure One shows a typical cable plat which indicates the location of pressure plugs or dams, terminal dams, pressure testing valves, and contactors.

Installing Pressure Plugs or Dams — One-Inch or Larger Cables (Wrap Method)

The method of blocking telephone cables, using self-curing epoxy resins, described here is furnished through the courtesy of Minnesota Mining and Manufacturing Company.

The advent of self-curing epoxy resins has simplified the reliable blocking of gas pressurization of

More Data For Your "Spec Book" On Page 61.

scriber and wants an order to cover work already done; requests for more or better address information; reports of "No Access" — as they occur; release of facilities for held orders; advance Delayed Order Report information — where facilities are found lacking for scheduled installations; notice of missed appointments; and replies to inquiries and requests from the Business Office.

Installation of TelAutograph equipment between Plant Service Centers and central office frames resulted from the fact that these facilities are usually located in different quarters within typical Pacific Telephone buildings. In such cases, the telescriber system offers even greater potential benefits because the work at the frames is done by skilled people whose time is comparatively costly.

Just as often as not, these people are apt to be up on a rolling ladder making a wiring connection when messages come through for them. A telephone call would necessitate their stopping what they were doing. Telescriber messages can be covered in more convenient order.

Here are typical types of messages over such systems:

From Plant Service Center to Frame: Requests for completion of framework in coordination with installations or changes in customer's service; notification of completion of disconnect orders so that jumpers can be pulled from frames; changes in assignment information; cancelled order notifications; requests for return of order copies when work is rescheduled to a considerably later date; requests for frame checks to verify assignment records; requests to restore temporary disconnects; and requests for message register readings.

From Frame to Plant Service Center: Requests for verification of assignments; notification of restoration of temporary disconnects; etc.

Because of the nature of the work at hand, telescriber installations between the Plant Service Center and frame have made possible an even greater degree of efficiency improvement than between Commercial Office and Plant.

"Off The Board"

Communications Securities

Markets as of April 14, 1960.	DIVIDEND	BID	ASKED	LAST SALE
American Tel. & Tel.	3.30			93¼
Anglo-Canadian Tel. (Brit. Col. & Dom. Rep.)	1.20	37¼	38	
Bell Tel. of Canada	2.20			46
British Columbia Tel.	2.20	44¾	45¼	
Calif. Interstate Tel. (Calif.-Nev.)	.70	13¾	14⅛	
Calif. Pac. Util. (new) (Calif., Ore., Nev.)		18¼	19	
Calif. Water & Tel.	1.28	26⅞	27¼	
Carolina Tel. & Tel. (Carolina)	1.60	37½	38½	
Central Elec. & Gas (Minn., Ill., Ia., Wis., Va.)	1.00	23½	23⅞	
Central Telephone (Minn., Ia., N. C., Va.)	.88	21¼	21¾	
Chenango & Unadilla Tel. (N. Y.)	1.20	26	27½	
Cincinnati & Suburban Tel. (Ohio)	4.50	89	90	
Citizens Utilities (Calif., Pa.) "A"	stk. only	13¾	14¼	
Citizens Utilities (Calif., Pa.) "B"	.52½	12⅛	12½	
Commonwealth Tel. Co. (Pa.)	.90	20	20¾	
Florida Telephone Co.	1.00	29	29¾	
Gen. Tel. & Electronics	2.20			84¼
Hawaiian Tel. Co. (Hawaii)	1.00	20¾	21¼	
Indiana Telephone Co. (Ind.)	.50	22	—	
Inter-County Tel. & Tel. (Fla.)	2.00	66	69	
Inter-Mountain Tel. (Va. & Tenn.)	.80	15¾	16¼	
Jamestown Tel. (N. Y.)	5.60	81½	—	
Lincoln Tel. & Tel. (Neb.)	2.60	63½	—	
Lorain Tel. Co. (Ohio)	1.40	33	—	
Middle States Tel. Co. (Ill.)	1.00	25½	26	
Mountain States Tel. (Ariz., Colo., Mont., Tex., etc.)	6.60			176
New England Tel. & Tel. (New England states)	1.72			36¼
North Carolina Tel. (N. C.)	none	1	1⅛	
Northern Ohio Tel. (Ohio)	1.60	51	52	
Pacific Tel. & Tel. (Calif., Wash., Ore., Nev., Ida.)	1.14			28¾
Peoples Telephone (Pa.)	4.00	83		
Pioneer Tel. Co. (Minn., N. D.)	1.00+stk	35½	37	
Rochester Telephone (N. Y.)	1.00			25¾
Southeastern Tel. (Fla.)	.90	20½	21½	
Southern New England Tel.	2.20	44½	45	
Southern Nevada Tel. (Nev.)	1.00	21¼	22¼	
Southwestern States Tel. (La., Ark., Okla., Tex.)	1.20	23⅜	23¾	
Tel. Serv. Co. of Ohio "A" (Ohio)	2.80	150	155	
Tel. Serv. Co. of Ohio "B" (Ohio)	2.80	152	—	
Tidewater Telephone Co. (Va.)	1.40	25	26	
United Utilities	1.40	40⅞	41¼	
West Coast Tel. (Wash., Ore., Calif.)	1.20	24⅞	25⅛	
Western Union Telegraph	1.40			44⅝
Western Utilities	.36	7¾	8	
Western Light & Tel. (Mo., Ia., Kans.)	2.00	42¼	43¼	

(Source of market — DEAN WITTER & CO.)

New Products' Showcase

SUPPLIES AND EQUIPMENT

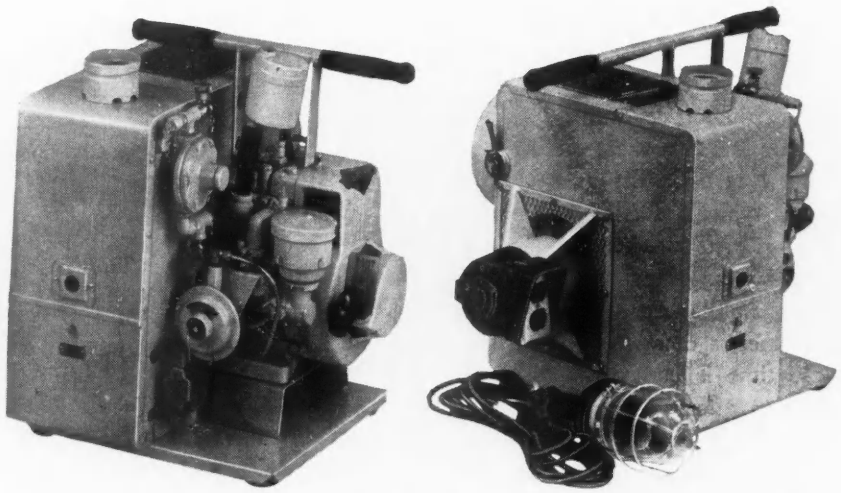
By DICK REYNOLDS

Ventilating Heater

THE 1960 MoPeCo Model PE-G from Morrison-Pelsue Co. is a 78 pound ventilator and heater with attached 300 watt generator for electric light or soldering iron. A new waterproof weatherguard protects the electric outlets on the generator. The case has been redesigned with rounded corners, and the stainless steel heat exchanger is fabricated with continuous welded seam.

The heater delivers from 300 to 800 cubic feet per minute of fresh heated air. This heated air passes through the heat exchanger and all products of combustion pass into the atmosphere through the burner exhaust so that only fresh, heated air is forced into the manhole area.

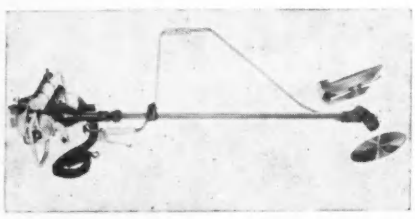
The PE-G is equipped with a forced draft burner which has an input rating of from 10,000 to 45,000 BTU's per minute with a 98° temperature rise. It is designed for year around ventilation, delivering heated fresh air in winter and fresh air only in summer when operated as a blower. A 62 pound Model PE is identical less the generator. *Check NP* 426.



Two views of Morrison-Pelsue Co.'s 1960 Model PE-G ventilator and heater.

Portable Power Brushcutter

THE BRUSHKING, from Rowco Mfg. Co., cuts saplings up to four inches in diameter in a scything action. The weight of the unit is distributed to the shoulders and to each



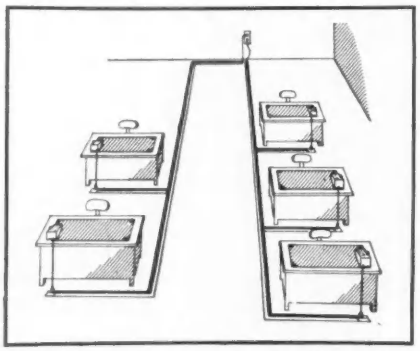
hand for operation. Due to the length of the drive shaft, the operator cannot reach the saw blade, should he stumble and fall. The shatterproof steel blade is an added safety factor.

Brushking has a high-speed, two cycle, air-cooled engine that is swivel-mounted, allowing for limbing and trimming operations. The usual operating speed of the Brushking blade is nearly 7,000 rpm. *Check NP* 427.

Electriduct Extension Cord

A NEW over-the-floor extension cord called "Electriduct" has been announced by Ideas, Inc., to eliminate messy tangled extensions.

The cord is made of special rubber, and comes in four ready-to-use



Drawing shows an over-the-floor electrical outlet system.

lengths (4 foot to 10 foot) individually boxed. About 2 feet of No. 16 AWG 2-conductor rip cord with molded plug attached extends from one end and a double outlet receptacle is molded in the other end. One outlet protector to prevent dirt and water from entering unused outlets is included with each cord. *Check NP* 428.

If you would like information on an over-the-floor electrical outlet system (see drawing) constructed to your specifications, completely prewired, all joints vulcanized, ready to place on floor, plug into outlet, and put into service, check NP 428 *(A).*

Rechargeable Cartridge

SONOTONE Corporation has introduced a long-life industrial version of its rechargeable battery cartridge. This new model is designed for persons who need several hours of steady, reliable light from the flashlights they use on their jobs.

The new cartridge will give approximately three hours of light on a 16-hour charge when used with a PR-4 bulb or the industrial-type PR-6 bulb. Longer charging will increase the hours of light.

All cartridges are charged by unscrewing the cap and inserting the prongs in any 110-volt AC outlet, on the job or in the home. An overnight

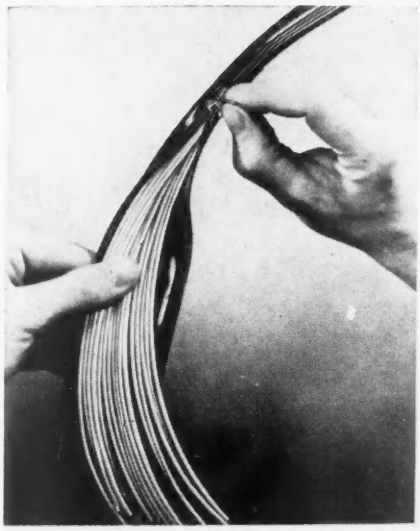
charging is sufficient for most purposes.

The cartridge fits into most flashlights in common use (or any other devices) which now use two "D"-size cells end to end. A complete recharging unit is incorporated with the sealed cells in a sturdy, attractive metal case which is leakproof and shockproof. *Check NP* 429.

Zippertubing

A NEW method of protecting wires and cables subject to wear and abrasion by trees or other objects is being introduced by The Zippertubing Company.

Wear areas, according to the company, can now be protected by use of



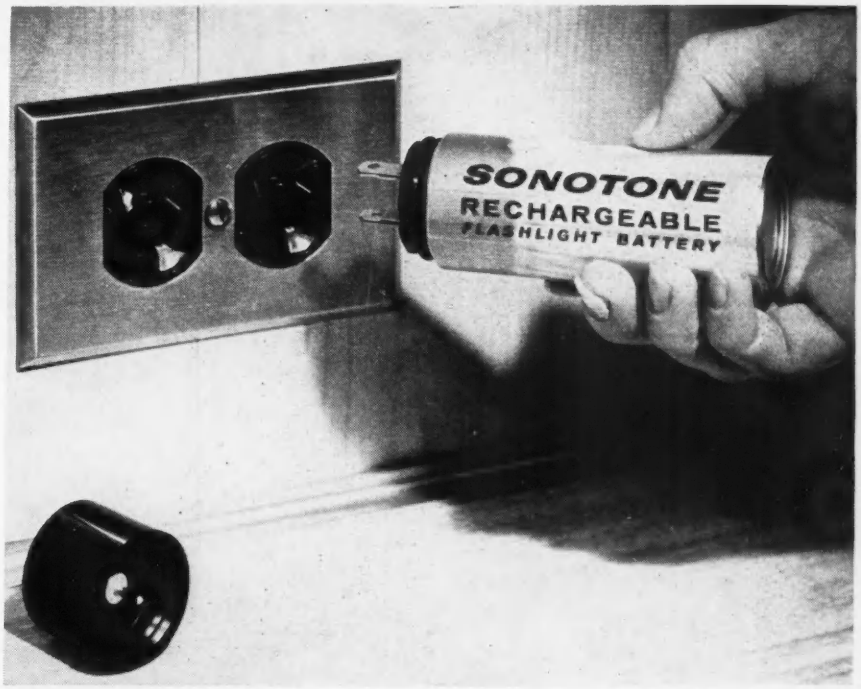
a protective Zippertubing jacket that can be zipped on in a few seconds by one man.

The Zippertubing is available in a wide range of materials including fiberglas, Vinyl, Teflon, Neoprene and Polyethylene.

Zippertubing is wrapped around the wires to be protected so that the beading on both edges of the tape lines up, then it is zipped shut. *NP* 430.

Hydraulic Power Pumps

FOUR HEAVY-DUTY hydraulic power pumps developing 10,000 psi continuous pressure and designed especially to drive rams, jacks, presses, and similar hydraulic units, have been announced by Greenlee Tool Co.



The Sonotone rechargeable flashlight battery cartridge (either the heavy-duty industrial model or the standard consumer type) slips into any flashlight now using two "D" cells, end to end. It is recharged by removing the cap and plugging into any house or shop outlet.

Powered by a self-contained ¾-hp, 115-230 volt, a-c, single-phase, constant-speed (1725 rpm) capacitor-type electric motor, the new No. 1721 Series power pumps have a pumping capacity of 150 cu. in. per minute at pressures up to 150 psi and automatic change-over to 30 cu. in. per minute up to 10,000 psi.

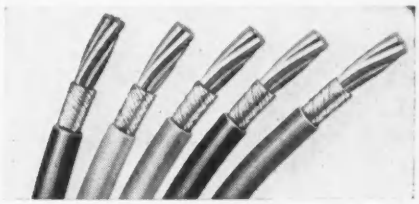
Usable oil volume in all four models is 260 cu. in. Motor can be

started under load, while ram is held in position under pressure. Pumps are finished with an outlet block having two ⅜" npt and pipe outlets for pressure take-off and return. *Check NP* 431.

Color Jacketed Cables

LENZ Electric Mfg. Co. is introducing plastic jackets in standard colors.

Color coded in this way, the cables



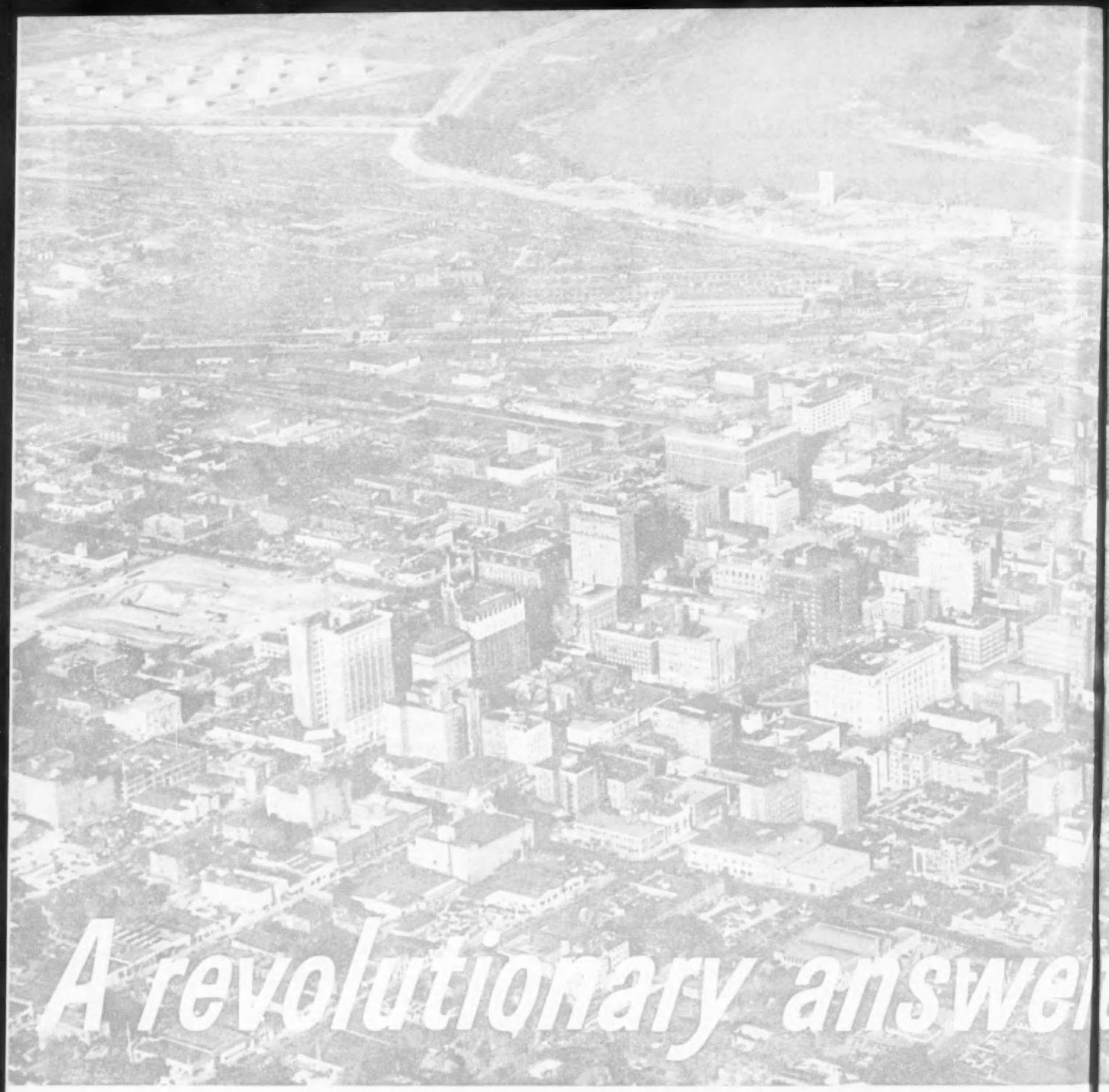
connecting units of electronic equipment can be quickly identified as to function and circuit, before, during and after installation.

Lenz cables in color plastic jackets are available with any size and number of conductors. *Check NP* 432.

Hydraulic Ladder

HOLAN CORPORATION has announced that the Holan Series 2600-A Manual-Hydraulic Ladder will replace the Series 2600 in the company's line of aerial ladders.

Support frame construction has been changed from tubular to plate metal for added rigidity. Non-skid pierced metal pedestal step treads and re-location of the rotation crank to the left of the mast were changes



Kellogg K-24 shorha

Kellogg's K-24 Synchroplex Carrier fills an important gap in carrier systems: now telephone companies have a simple economical solution at their disposal to *any* expansion problem. With the K-24 you get economical telephone circuits over relatively short lengths of exchange or toll cable: it provides 24 channels on two cable pairs at distances as short as 10 miles or less.

Kellogg's K-24 has been tested and accepted by the country's largest telephone systems. It is equally adaptable to underground or overhead cable lines. Its unique features lead to substantial economies where expanded cable service is indicated. The K-24 is completely transistorized; components of each unit use etched-wire circuitry; mounting is very compact and flexible.

Rounding out the Kellogg Carrier picture are the K-31 for rural subscriber service and K-32 trunk carrier. Each provides dependable, economical expansion over existing facilities. For complete technical details, fill in the coupon below. At the same time you may arrange for an appraisal of your carrier needs by a Kellogg expert, if you so desire.

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Illinois. Communications Division of International Telephone & Telegraph Corporation.

haul cable carrier

KELLOGG Communications Division of IT
CHICAGO, ILLINOIS

gional Offices and Warehouses:
ALIFORNIA:
Broderick Road, Burlingame, California, OXford 7-5780.
EORGIA:
94 Southland Circle, N. W., Atlanta 18, Ga., SYcamore 4-2441.
LLINOIS:
00 So. Tripp Ave., Chicago 32, Illinois, CLiffside 4-4300.
ANSAS:
th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
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EXAS:
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Kellogg Switchboard and Supply Company, Carrier Division
Wake Forest Road, Raleigh, N. C.

☐ Please send me further details on your
☐ K-24 ☐ K-31 ☐ K-32 Carrier Systems

☐ Please arrange to have an engineer call to appraise our Carrier needs

Name_____

Title_____

Company_____

Address_____

made for added safety and ease of operation.

The dual-level platform, which provides standing surfaces at all ladder angles, and 12000-volt woodstrain insulators are standard equipment on the new Holan ladder.

The 2600-A is raised by pushing a button and lowered by turning a needle valve control handle located below the button box on the right side of the mast.

The 2600-A is available in 28- and 32-foot heights, rotates 360° in either

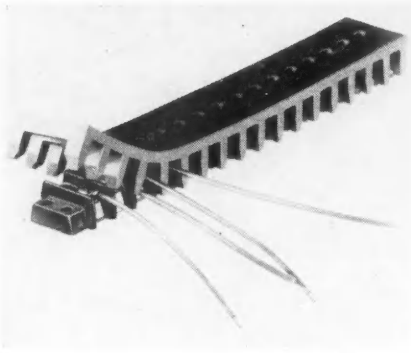
direction and elevates to a 75° angle. Fiberglass covering of the side rails and knurled steel ladder rungs are optional. *Check NP* 433.

Terminal Block Covers

TA MFG. CORP. has announced the availability of new rubber terminal block covers for industry.

Wherever terminal blocks are used, there is an inherent danger of fires, short circuits, and the disruption of electrical equipment, especially where no covering has been provided for the block. Heretofore, metal covers, plastic lids, or some other hard-to-remove protection has been utilized in hazardous areas.

The new rubber covers are available in a choice of Neoprene, Buna-N,



or Silicate Rubber, and are produced in three basic forms. One type is a flexible casing, constructed with a wall between each terminal pole. The outer wall is slit to allow wires to be guided through the wall to the terminals.

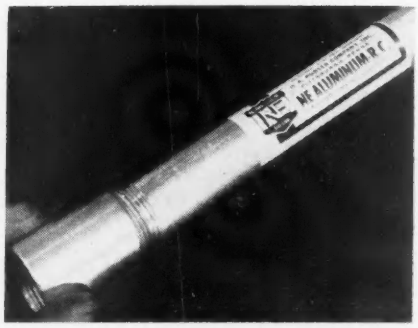
Another type is designed for barrier strips. This cover fits firmly into place because the divider between each terminal is grooved to receive the terminal strip wall.

The third type is a thimble-type terminal cap, for use where the larger unit is impractical. It is designed to fit over an individual terminal pole. *Check NP* 434.

Aluminum Conduit

A LINE of aluminum electrical conduit has been announced by the National Electric Division of the H. K. Porter Company, Inc.

The new conduit is made of aluminum alloyed to grade number 6063 and processed to a T-42 temper. NE-

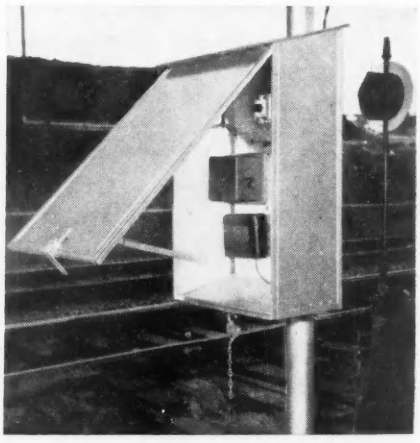


aluminum conduit is available in all sizes, ranging from ½″ through 6″ in diameter. Each length measures 10 feet when a coupling is attached. Color-coded thread protectors are used for ease of stocking and size selection. Aluminum elbows are furnished in all sizes including special radii. *Check NP* 435.

Communication Housing

A NEW line of telephone, cable and communication housings for outdoor use by the railroads has just been announced by Zero Mfg. Co., White Division.

Standard size panels and hardware are assembled together using a



newly developed epoxy resin as a bonding agent, and then baked in an oven under carefully controlled conditions. The panels are constructed of laminated cores bonded by thin skins of aluminum on each side.

Zero communication housings are available in custom and stock sizes and can be assigned to protect the contents against any known hazard. *Check NP* 436.

NEW PRODUCTS' DEPARTMENT **5-1-60**
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Please send me additional information concerning the following New Products.

NP 426..... NP 427..... NP 428..... NP 428(A) .....
NP 429..... NP 430..... NP 431..... NP 432.....
NP 433..... NP 434..... NP 435..... NP 436.....

NAME..... POSITION.....
COMPANY.....
ADDRESS.....
CITY..... ZONE..... STATE.....

PLANT MAN'S 'SPEC' BOOK

(4) Cable Pressurization Procedures — Installing Pressure Plugs, Contactors, and Valves

communications cable. Solid chunks of the resin can be cast nearly anywhere in the cable where a block may be desired, forming a permanently fixed dam of material that is, in itself, an excellent electrical insulation.

Basic material of the resin system of blocking is "Scotchcast" brand resin No. 4 in the "Unipak" container which contains the resin in one side and the activator in the other side of a divided plastic envelope. The resin and activator are mixed by breaking the divider and squeezing alternate ends of the envelope until the two components are thoroughly mixed.

The method outlined below works with maximum reliability on cables with any type of sheath, whether lead, plastic, or other material and larger than 1-inch O.D. It is called the resin pressure method and relies on the use of epoxy resin forced into a built up mold through a pressure gun resembling a caulking gun.

1. Remove a 5-inch section of sheath at the point where a gas block is desired.

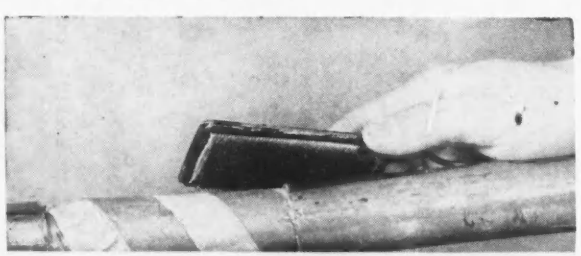

FIGURE TWO.

PLANT MAN'S 'SPEC' BOOK

(5) Cable Pressurization Procedures — Installing Pressure Plugs, Contactors, and Valves

2. Clean the sheath at least 3 inches on both sides of the opening with a scraper or file card as shown in *Figure Two.*

3. Wrap two turns of 1½-inch wide heavy plastic tape ("Scotch" brand No. 22) around the sheath at both ends of the conductor bundle with half the tape on the sheath and half on the bundle. Just inside the sheath opening apply 6 turns of filament tape ("Scotch" brand No. 45) ¼-inch wide as shown in *Figure Three.* These turns must be stretched as

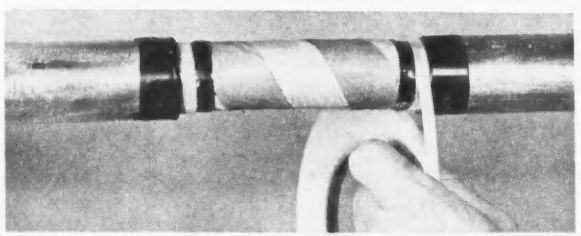

FIGURE THREE.

tightly as possible since they form constricting bands and prevent the escape of resin into the cable beyond the block by squeezing the bundles together.

4. Remove the original core wrapping between the two wraps of plastic tape, exposing the conductor bundles. Cut and remove carefully any cord bundle ties, including those on inside bundles as indicated in *Figure Four.* A common crochet hook sharpened inside the hook is a handy tool for cutting inside bundle ties.

PLANT MAN'S 'SPEC' BOOK

(6) Cable Pressurization Procedures — Installing Pressure Plugs, Contactors, and Valves

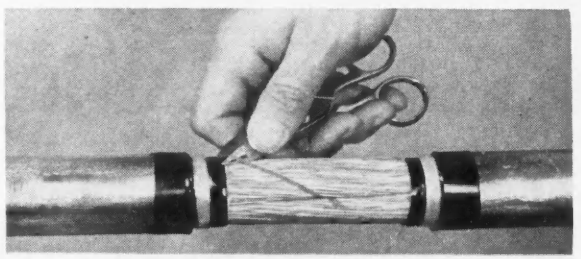

FIGURE FOUR.

5. Move the sheath ends back and forth to loosen the compactness of the conductor bundles. A cable jack or slack-puller may be used to provide a small amount of slack in the opening which aids in loosening the bundle compactness. This is to allow ready access to the resin between bundles and conductors.

6. Insert plastic cable channeling pins ("Scotchcast" P-9) through the conductor bundle as illustrated in *Figure Five.* Pins are spaced parallel to each other and from ¼ to ⅜-inch apart.

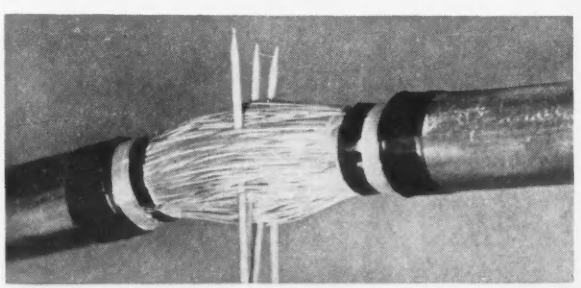

FIGURE FIVE.

More Data For Your "Spec Book" in the Next Issue.

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It Takes Two To Make a Team

"I NEVER realized that a person could live through the many headaches that plague a telephone manager and still be completely happy with his decision to become one."

This from the male half of the team — *Stewart* and *Stewart* of *Cornelia, Georgia.*

"I just tell everybody how much we love these north-Georgia highlands. It seems to be catching."

This from the other half of the team.

Milton Stewart has spent all his adult life in the telephone industry: as a manufacturer's representative, executive secretary of the Texas Association and then the Pennsylvania Association. Milton and his wife Helen had been through Cornelia many times . . . . it's on the main line of the Southern Railroad and a principal highway to Atlanta. Each time they saw this country the conviction grew stronger — here was the place they wanted to live. In 1939 a small telephone property became available. The Stewarts put everything they had on the table. It was enough.

This summer — 20 years later — the Stewarts still think this move was the best decision they ever made. From their home they can walk a few steps to Chenocetah Mountain, overlooking Lake Russell — a sapphire set in forest green. Within picnic distance: four State Parks protecting mountain lakes; the highest point in Georgia; Toccoa Falls; Tallulah Gorge. Take rod or gun — trout, bass, deer and wild boar abound in the Chattahoochee National Forest. Want to pan your own gold? You still can, near Dahlonega, where a Rush began 20 years before the 49'ers trecked to California. But the real gold is in the scenery, the climate (balmy days, cool nights, invigorating mountain air), and the new-found business opportunities that are springing up like mushrooms.

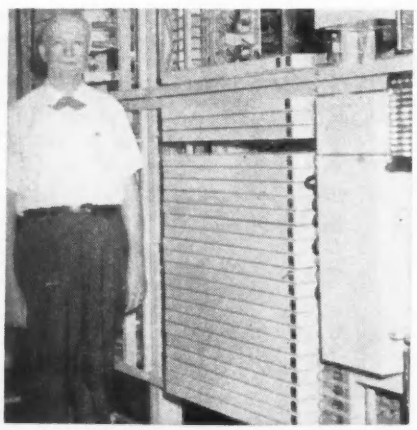
The female half — HELEN STEWART, executive secretary of the Cornelia Chamber of Commerce — at her favorite occupation: talking about the beauty, the opportunities and the good living in Northeast Georgia.

These are just a few of the things you'll learn from Helen Stewart if you stop at the Chamber of Commerce where she is executive secretary. Her enthusiasm is convincing because she herself is convinced. Those who drop in for information remain for a made-to-order vacation. But the good news travels out in all directions. Many, bird-free, come to taste and remain to feast. Others, discouraged or driven, see here a place to make a new start, to earn a living and — more important — relearn that living can be fun.

Fun?

One woman's enthusiasm can be her husband's headache! So thoroughly has the story been told that the whole area is jumping with new life. Industry has chosen this region for a mass assault. Population has trebled since the Stewarts arrived.

Telephone demand — once so in-



The male half of the team — MILTON STEWART, president and general manager of the Standard Telephone Co., Cornelia, Ga. From a few scattered "toll stations" to a 10-exchange system — 9 already Dial — during his managership.

significant that the whole territory was covered by a few "toll stations" and *every call was a long distance call* — is now the first requirement of the new establishments making everything from applesauce to zippers.

Milton Stewart knows that yesterday's good measure will be tomorrow's deficiency. Just as an example, a branch factory well served until recently by a No. 121 Cordless PBX has now grown to require an F-80. And each extra line in this PBX seems to have generated at least two in residential service demand.

When Milt Stewart goes to a USITA Directors' meeting, the only lines that show in his face are those that come from satisfaction, of a man who is supremely happy in his work.

For one thing, he knows what all this new activity means to the young people who love their native mountains and would much prefer to live here than to migrate to the cities. As long as Helen's persuasiveness brings industry to create jobs, the telephone manager's "headaches" find their own bromo in the confidence with which these young people look into the future.

And at day's end, when Helen locks the door at the Chamber of Commerce, she starts what she considers her most important job . . . . wife of the telephone company manager.

Allen and Johnston Buy Eastern Illinois Tel. Co.

W. CARL ALLEN has confirmed the change of ownership of the Eastern Illinois Telephone Co., Rantoul, Ill., as reported in the company's annual statement filed with the Illinois Commerce Commission.

Last August, Allen and Marvin A. Johnston purchased all the stock in the company owned by W. C. Drysdale and other stockholders. Under the new management, Allen was selected to the position of chairman of the board of directors and Johnston, president of the company. Other officers are: Tennie G. Johnston, vice-president; Vivian Allen, secretary; and Donald J. Korkowski, assistant secretary. Fred Grothe has been retained as office manager, and Richard Quinlan as plant superintendent.

The Eastern Illinois Telephone Co. was established on June 29, 1928, by W. C. Drysdale, who has been continuously active in the company as president until recently. When the company was started, it included telephone service for Rantoul, part of Thomasboro, Fisher, Gifford and Penfield. After World War II, the towns of Foosland, Armstrong, Potomac and Collison were added. Recently, a Flatville exchange was established.

During the past several years a $3,400,000 expansion and modernization program was started and is almost completed.

Last year almost ½ million dollars of improvements were added, and an expenditure of $300,000 is planned for 1960.

The new owners have had extensive experience in the telephone industry. Allen has been the attorney for the company for 20 years and has

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represented it in government and labor negotiations.

Johnston has had approximately 15 years of experience in the telephone industry. He formerly held the position of general manager at the South Plains Telephone Cooperative, Inc., Lubbock, Texas, and general manager of the Pecos Northwestern Telephone Co., Pecos, Texas. Previous to joining the Eastern Illinois Telephone Company, he was with the enginering department of General Telephone Co. of the Southwest at San Angelo, Texas.

Kinsman Appointed Ass't. Div. Mgr. at Gen. Tel.

GENERAL Telephone Co. has announced Ronald E. Kinsman, general plant supervisor, Muskegon, Mich., became the assistant eastern division mgr. with offices in Adrian, Mich., on May 1, and is scheduled to be appointed division manager in late June when I. L. Fry retires.

Kinsman began his career with the company in 1949 as a lineman in Muskegon. In April, 1951 his title was changed to installer-repairman and the following month he was transferred to Three Rivers as a combinationman. He became a testman there in May, 1952, and then went to Sturgis in July, 1953, occupying the same position.

In December of that year, he was transferred to Tecumseh, Mich., and appointed district plant supervisor serving in this capacity until August, 1954, when he became the Tecumseh district manager.

Until he assumed his assistant division manager's post on May 1, Kinsman was dividing his work between Muskegon and Adrian.

R. D. Buzzard Dies

ROBERT D. BUZZARD, 49, vice president and controller of the General Telephone Co. of Pennsylvania, died April 16 at St. Vincent Hospital, Erie, Pa., after suffering a heart attack at his home.

Mr. Buzzard had worked on Friday and had played golf Saturday afternoon before he was stricken.

Born in Flora, Ore., he had lived in Erie since 1946. He was a graduate

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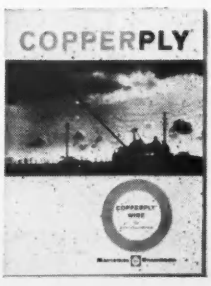

Write for Bulletin 203 that lists full size data, specifications and application photographs.

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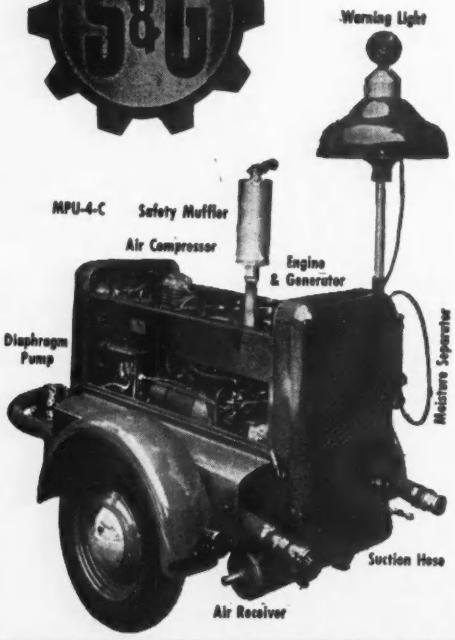

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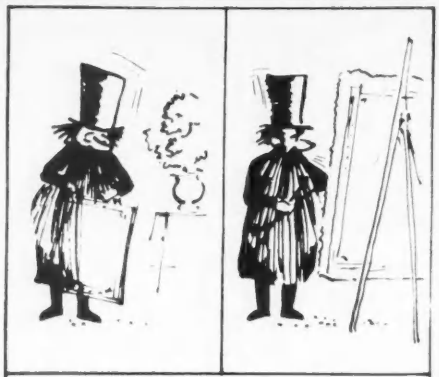

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of the University of Oregon, where he was a member of two honorary societies, Beta Gamma Sigma and Beta Alpha Psi.

From 1941 to 1945, Mr. Buzzard was senior executive of accountants for the Federal Power Commission. He also served as chairman of the Accounting Committee of the U. S. Independent Telephone Association. He was auditor for the Delaware Valley Telephone Co. and the Ohio Associated Telephone Co. from 1947 to 1949 and for the Southwest Associated Tel. Co. from 1945 to 1947.

In 1945 he joined the General system as controller of the General Telephone Co. of the Southwest and in 1953 became auditor, vice president and controller of the General Telephone Co. of Pennsylvania. He also was controller of the General Telephone Co. of Ohio and of Upstate New York.

Mr. Buzzard was recognized as an expert in the electronic accounting machine field and was listed in "Who's Who in America." He was a member of the First Methodist Church of Erie, the Culbertson Hills Golf and Country Club, and the Erie Golf Club.

Survivors are his widow, Juanita S. Buzzard; two daughters, Mrs. C. R. Wicks, Portland, Ore., and Mrs. John R. Tabb, Norfolk, Va.; two sons, Lt. Robert D. Buzzard, U. S. Navy, Norfolk, and Jon R. Buzzard, Syracuse, N. Y.; 11 grandchildren; four sisters, Mrs. Nelvin Cobb, Santa Rosa, Calif., Mrs. Donald Brault, North Bend, Ore., Mrs. Ralph Stubblefield, Elgin, Ore., and Mrs. Ernest Comstock, Melvin, Idaho, and two brothers, Walter L. Buzzard, Coos Bay, Ore., and Chester Buzzard, Empire, Ore.

Kearney Announces Two Promotions

J. C. FRIEDRICH has been named vice president in Charge of Manufacturing of the James R. Kearney Corporation. Friedrich will co-ordinate and supervise manufacturing operations of the company's St. Louis plant and plants at Fayettville, Arkansas, and Clarinda and Shenandoah, Iowa.

E. A. Groeteke was promoted to

plant manager of the company's St. Louis plant. Groeteke came to Kearney in 1952. Prior to his recent appointment, he served as plant manager of the firm's Shenandoah, Iowa plant for two years, and as plant manager of the Clarinda, Iowa operation for four years.

Two Named to New Posts By Stromberg-Carlson Sales

CARL H. PRICE has been named to the newly-created post of sales supervisor for the Kansas City branch office of Stromberg-Carlson's Telecommunication Division. Price will be succeeded as sales representative in the East Texas territory by Charles E. Fogg.

Well known to Independents in the South-Central states, Price will assist Branch Manager R. F. Fairly in coordinating the sales effort in that area.

Leon Roberts Participates In Public Relations Seminar

LEON F. ROBERTS, director of information of the United States Independent Telephone Association, Washington, D. C., participated as a public relations consultant in a two-day seminar conducted by the United States Navy at the Naval War College, Newport, R. I., April 21-22. Other guest consultants included the public relations directors of the Radio Corp. of America, General Electric Co., General Dynamics Corp., Raytheon Corp., Batten, Barton, Durstine & Osborn, Inc., The Borden Co., and Kaiser Industries.

Moderator of a panel of newspaper, motion picture, radio, and television counsellors who discussed "The American Communication System" was A. F. Monroe, vice president-public relations, J. M. Mathes, Inc., New York. Members of the panel included John Ford, motion picture director; Peter Hackes, news analyst of the National Broadcasting Co., and Frank Bartholomew, president of United Press International.

A feature of the program was a lecture "Let the Public Not Be Damned!" by Dean Edward Barrett of the Columbia University School of Journalism.

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1253AS	115/230	50/60	1	12	.05-0.5	1	20.00
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(Continued from page 69)

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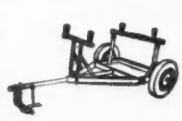

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eliminates radio interference

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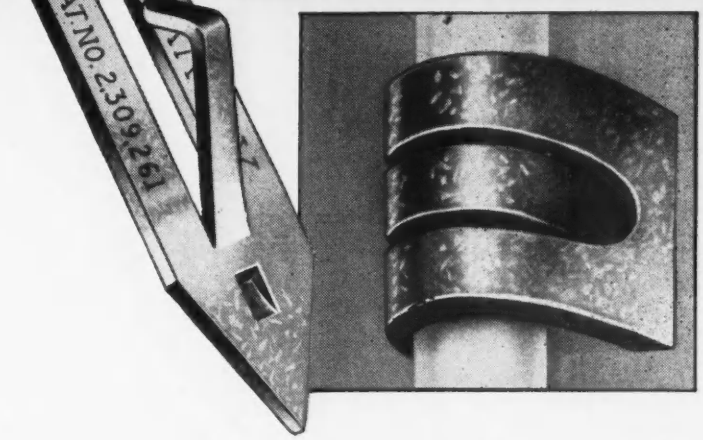

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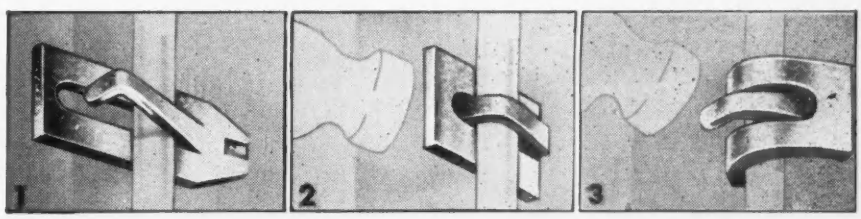

Easy to install: Just drive clip until point seats firmly in wood. Insert ground wire under hook, then drive until hook grips wire and starts protruding through slot in body. Bend end of clip over the wire and into the wood.

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

Dial SEAL, SEAL, GOOSE for Long Distance

ALASKA — our biggest state — may also have some of the biggest problems. Consider, for instance, the plight of the *Kagayuaki Telephone Company*. It was installing a brand new dial system, but the subscribers couldn't read either letters or numbers! This was serious.

The hard-pressed manager, anxious to help his customers and to insure success for the dial system, wrestled long and hard with this problem. Suddenly the dawn. His customers all knew a seal when they saw one; likewise an elk, bear, moose . . . . on up to goose for *zero*. (Secondary use of this designation as the digit for Operator is entirely irrelevant!)

So he came up with the ingenious dial number plate shown in the illustration. Now his subscribers merrily spin Seal, Seal, Goose for toll calls. Should they want to know what's on at the movies, it's as simple as dialing Bear, Elk, Mountain Goat — Rabbit, Fox, Crab, Duck. So much easier than numerals!

Its OK to try out your own favorite telephone numbers on this "animated" system, but don't try calling the Kagayuaki Telephone Company. The whole scheme is a humorous brain child of John Cushing, of the Sitka (Alaska) Telephone Company. He had this amazing dial made up as a gag to show his state-side friends.

And, just so you don't get any wrong ideas about John's customers or his telephone company, Sitka has telephone service as modern as anywhere. When this office was first cut to XY-Dial, nearly two years ago, it employed the *all-numeral* 7-digit numbering scheme long advocated as the most practical approach to nationwide DDD — an idea that is catching on gradually in the "other 49."

If your examination of the Kagayuaki dial detected an extra digit . . . . *everything* is bigger in Alaska!

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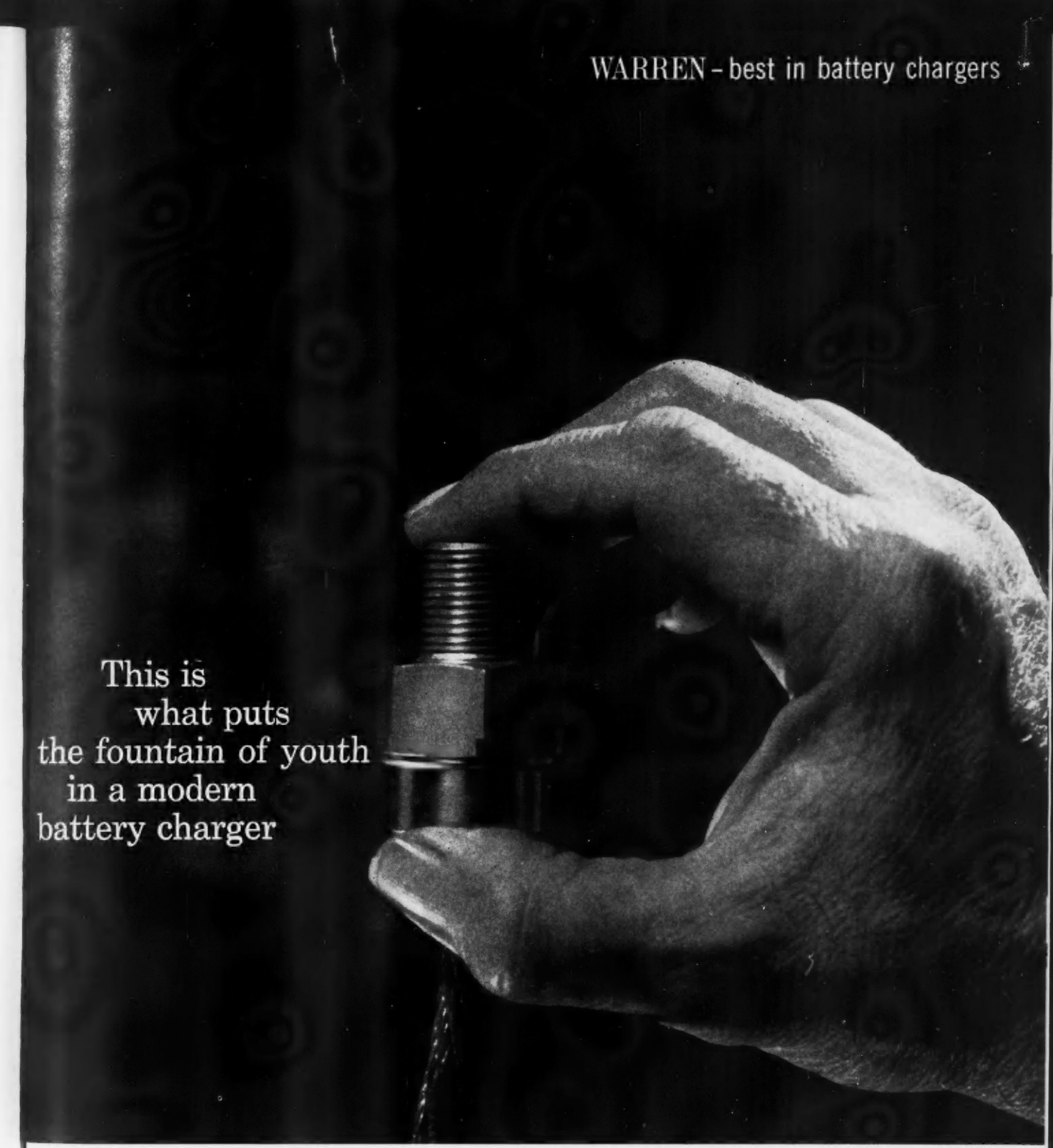

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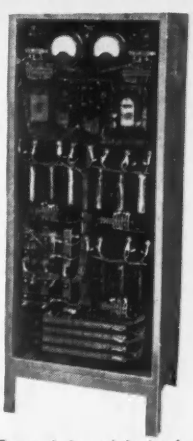

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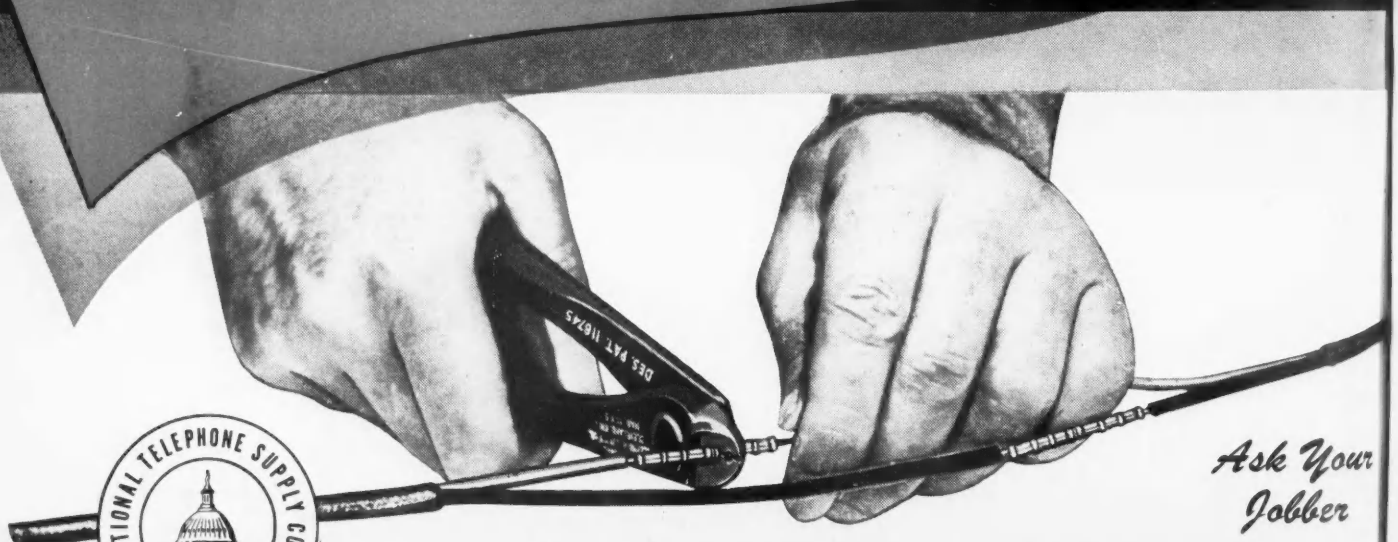

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